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JUL 16 1964

CURRENT SERIAL RECORDS

**WATER SUPPLY OUTLOOK**  
and  
**FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS**  
**for**  
**OREGON**

UNITED STATES DEPARTMENT of AGRICULTURE...SOIL CONSERVATION SERVICE  
and  
OREGON STATE UNIVERSITY  
and  
STATE ENGINEER of OREGON

Data included in this report were obtained by the agencies named above  
in cooperation with other Federal, State and private organizations.

AS OF  
FEB. 1, 1964

# UNITED STATES DEPARTMENT OF AGRICULTURE - SOIL CONSERVATION SERVICE

## To Recipients of Water Supply Outlook Reports:

The climate of the cultivated and populated areas of the West is characterized by relatively dry summer months. Such precipitation as occurs falls mostly in the winter and early spring months when it is of little immediate benefit to growing crops. Most of this precipitation falls as mountain snow which stays on the ground for months, melting later to sustain streamflow during the period of greatest demand during late spring and summer. Thus, nature provides in mountain snow an imposing water storage facility.

The amount of water stored in mountain snow varies from place to place as well as from year to year and accordingly, so does the runoff of the streams. The best seasonal management of variable western water supplies results from advance estimates of the streamflow.

A snow survey consists of a series of about ten samples taken with specially designed snow sampling equipment along a permanently marked line, up to 1000 feet in length, called a snow course. The use of snow sampling equipment provides snow depth and water equivalent values for each sampling point. The average of these values is reported as the snow survey measurement for a snow course.

Snow surveys are made monthly or semi-monthly beginning in January or February and continue through the snow season until April, May or June. Currently more than 1400 western snow courses are measured each year. These measurements furnish the key data for water supply forecasts.

Streamflow forecasts are obtained by a comparison of total or maximum snow accumulation, as measured by snow water equivalent, to the subsequent spring and summer or snowmelt season runoff over a period of years. The snow water equivalent measured in selected snow courses provides most of the index to the streamflow forecast for the following season. More accurate forecasts are usually obtained when other factors such as soil moisture, base flow and spring precipitation are considered and included in the forecast procedure. Early season forecasts assume average climatic conditions through the snowmelt season.

Listed below are the Federal-State-Private Cooperative Snow Survey and Water Supply Forecast reports available for the West which contain detailed information on snow survey measurements, streamflow forecasts, reservoir storage, soil moisture and other guide data to water management and conservation decisions. Soil Conservation Service Reports may be secured from Water Supply Forecasting Unit, Soil Conservation Service, P.O. Box 2807, Portland, Oregon 97208.

## PUBLISHED BY SOIL CONSERVATION SERVICE

<u>REPORTS</u>	<u>ISSUED</u>	<u>LOCATION</u>	<u>COOPERATING WITH</u>
<b>RIVER BASINS</b>			
WESTERN UNITED STATES			
WESTERN UNITED STATES	MONTHLY (FEB.-MAY)	PORTLAND, OREGON	ALL COOPERATORS
BASIC DATA SUMMARY	OCTOBER 1	PORTLAND, OREGON	ALL COOPERATORS
<b>STATES</b>			
ALASKA	MONTHLY (MAR.-MAY)	PALMER, ALASKA	ALASKA S.C.D.
ARIZONA	SEMI-MONTHLY (JAN.15 - APR.1)	PHOENIX, ARIZONA	SALT R. VALLEY WATER USERS ASSOC. ARIZ. AGR. EXP. STATION
COLORADO AND NEW MEXICO	MONTHLY (FEB.-MAY)	FORT COLLINS, COLORADO	COLO. STATE UNIVERSITY COLO. STATE ENGINEER N. MEX. STATE ENGINEER
IDAHO	MONTHLY (JAN.-JUNE)	BOISE, IDAHO	IDAHO STATE RECLAMATION ENGINEER
MONTANA	MONTHLY (JAN.-JUNE)	BOZEMAN, MONTANA	MONT. AGR. EXP. STATION
NEVADA	MONTHLY (JAN.-MAY)	RENO, NEVADA	NEVADA DEPT. OF CONSERVATION AND NATURAL RESOURCES - DIVISION OF WATER RESOURCES
OREGON	MONTHLY (JAN.-JUNE)	PORTLAND, OREGON	OREG. STATE UNIVERSITY OREGON STATE ENGINEER
UTAH	MONTHLY (JAN.-JUNE)	SALT LAKE CITY, UTAH	UTAH STATE ENGINEER
WASHINGTON	MONTHLY (FEB.-JUNE)	SPOKANE, WASHINGTON	WN. STATE DEPT. OF CONSERVATION
WYOMING	MONTHLY (FEB.-JUNE)	CASPER, WYOMING	WYOMING STATE ENGINEER

## PUBLISHED BY OTHER AGENCIES

<u>REPORTS</u>	<u>ISSUED</u>	<u>AGENCY</u>
BRITISH COLUMBIA	MONTHLY (FEB.-JUNE)	WATER RESOURCES SERVICE, DEPT. OF LANDS, FOREST AND WATER RESOURCES, PARLIAMENT BLDG., VICTORIA, B.C., CANADA
CALIFORNIA	MONTHLY (FEB.-MAY)	CALIF. DEPT. OF WATER RESOURCES, P.O. BOX 388, SACRAMENTO, CALIF.

**WATER SUPPLY OUTLOOK**  
and  
**FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS**  
**for**  
**OREGON**

ISSUED

**FEBRUARY 8, 1964**

*Report prepared by*

**W. T. FROST, Snow Survey Supervisor**

*and*

**BOB L. WHALEY, Assistant Snow Survey Supervisor**

SOIL CONSERVATION SERVICE  
209 S.W. 5TH AVE., PORTLAND 4, OREGON

*Issued by*

**THOMAS P. HELSETH**  
STATE CONSERVATIONIST  
SOIL CONSERVATION SERVICE

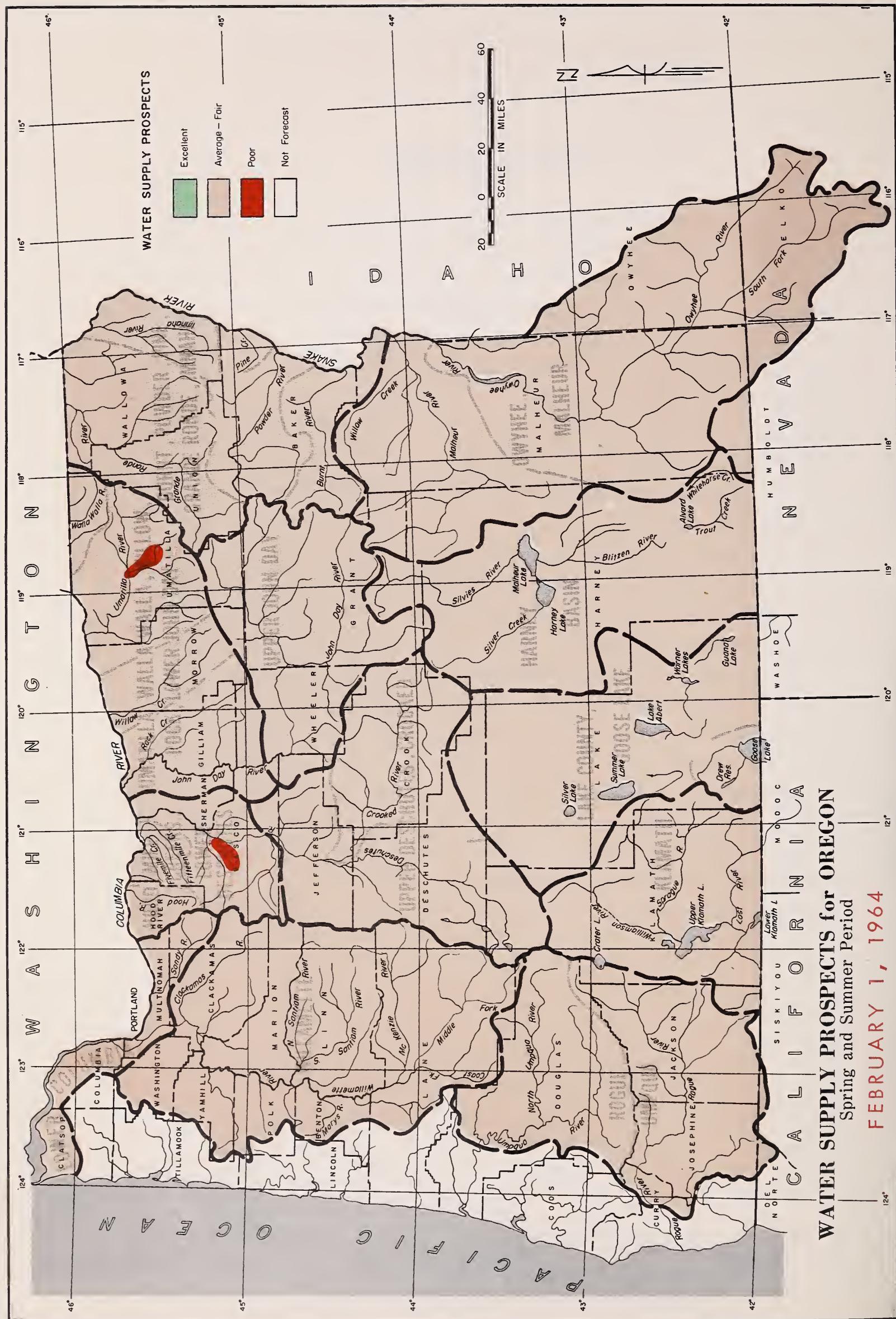
**F. EARL PRICE**  
DIRECTOR  
OREGON AGRICULTURAL  
EXPERIMENT STATION

**CHRIS L. WHEELER**  
STATE ENGINEER  
STATE OF OREGON



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# WATER SUPPLY OUTLOOK for OREGON

FEBRUARY 1, 1964

Heavy January storms brought huge additions to the mountain snowpack in much of Oregon and gave added assurance that the 1964 water supply outlook for the state will be adequate - the first adequate outlook since the winter and spring of 1957-58. Watershed soils are recharged sufficiently to favor snowmelt runoff and stored water supplies are satisfactory except for McKay Reservoir near Pendleton.

## SNOW COVER

Water content of the mountain snowpack increased rapidly during the past month from a short 45 percent of the January 1 average to 100 percent of the February 1 average over most of the state.

Greatest over-all increase was in the Lake County where the snowpack jumped from 31 percent average to 117 percent average. Greatest increase at any single snow station occurred at Phlox Point snow course at 5600 feet elevation on Mt. Hood where 33.7 inches of water was added to the pack during January.

## SOIL MOISTURE

The soil mantle under the snowpack is generally well recharged and will soak up only small amounts of snowmelt water thus favoring runoff next spring.

## RESERVOIR STORAGE

Water stored in 28 reservoirs has increased slowly and now totals 86 percent of the 15 year average figure (1943-57) and 7 percent greater than last year at this date. Stored water supplies appear to be "short" only in McKay Reservoir near Pendleton and Clear Lake Reservoir near Wapanitia Pass on the southeast shoulder of Mt. Hood.

## STREAMFLOW

Forecasts for streamflow affecting the 1964 irrigation season, April-September, vary from 88 percent average on the Deschutes River to 128 percent for inflow to Drews Valley Reservoir serving lands near Lakeview in Lake County.

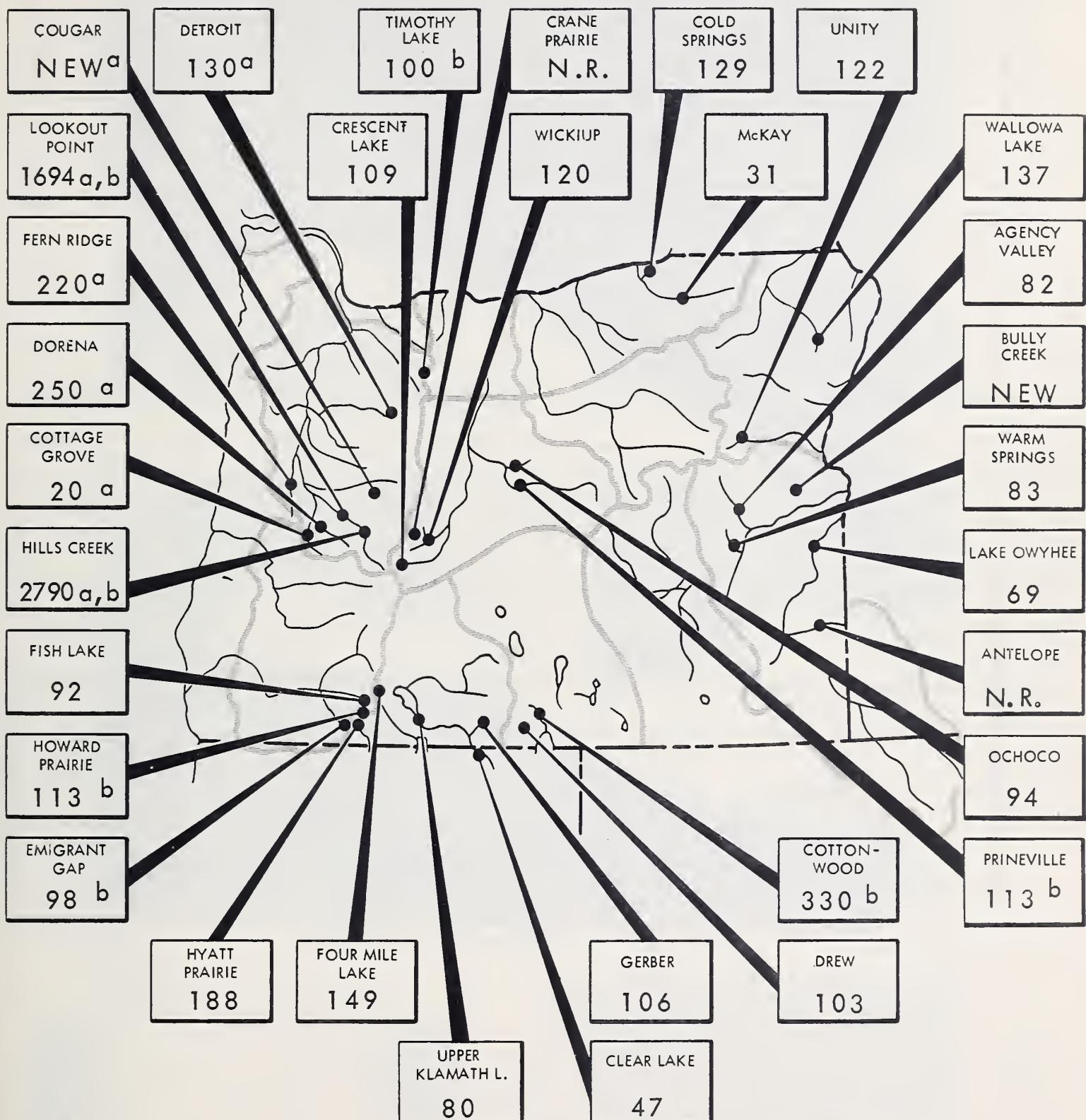
Flow of small streams heading in low-elevation watersheds will be near average following a normal snowmelt peak.

At this mid-winter date the water supply outlook is quite favorable. However, this is dependent upon a continuation of normal accumulation of snow and a spring melting season favorable for runoff.



# STORAGE STATUS of OREGON RESERVOIRS as percent of 1943-57, 15 year average

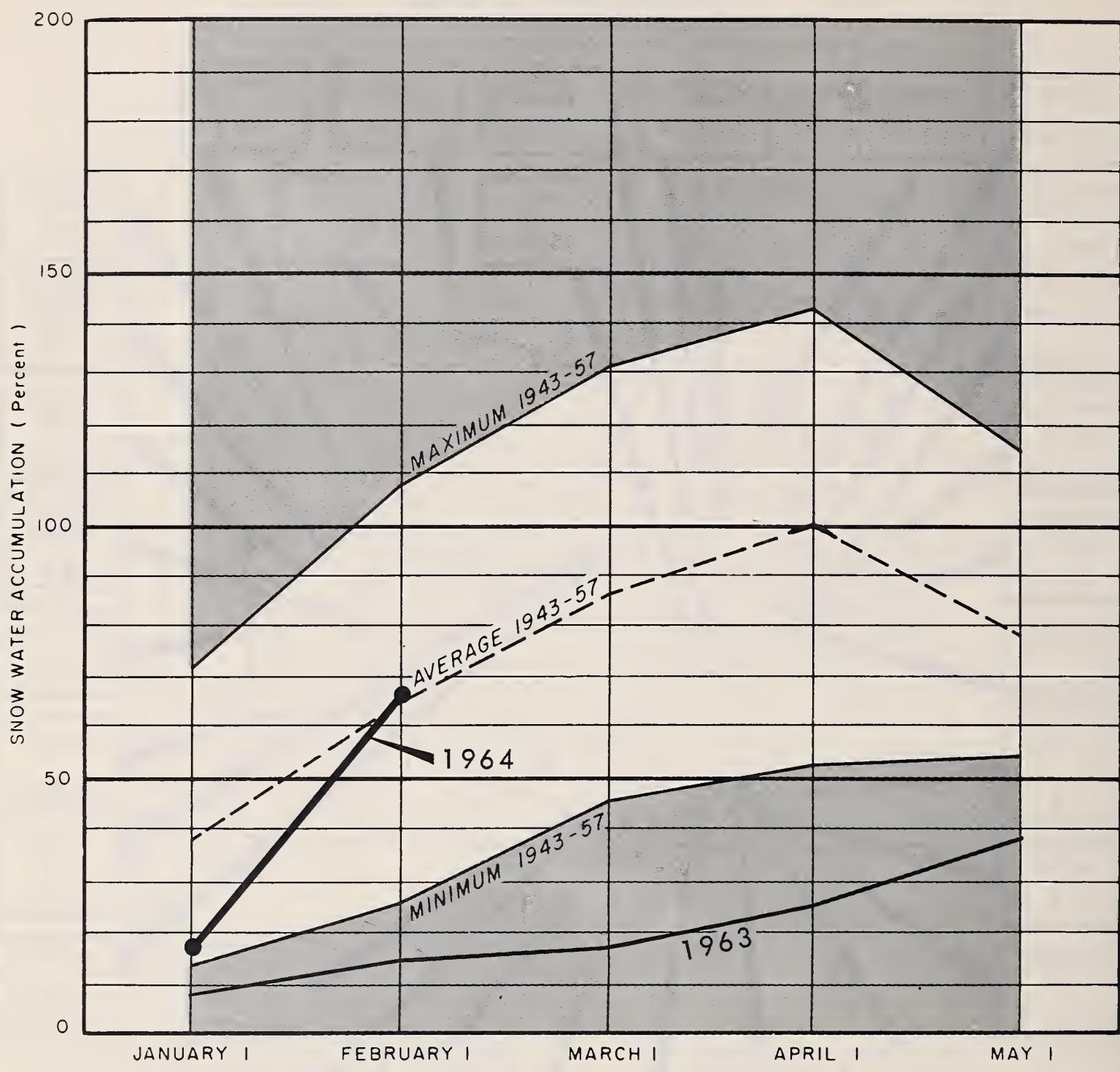
FEBRUARY 1, 1964



(a) Multiple purpose reservoir - space reserved primarily for flood runoff.  
 (b) Short record - compared with last year on this date.  
 N.R. - No report.

# SNOW WATER ACCUMULATION in OREGON

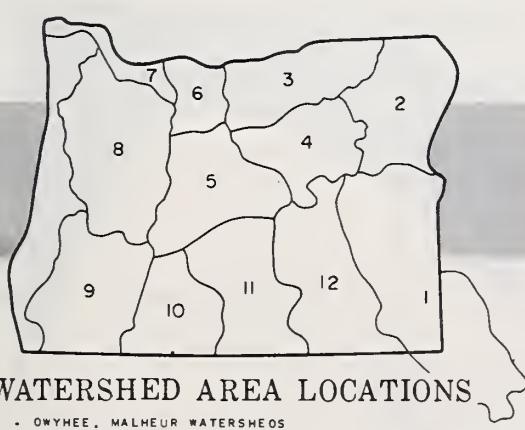
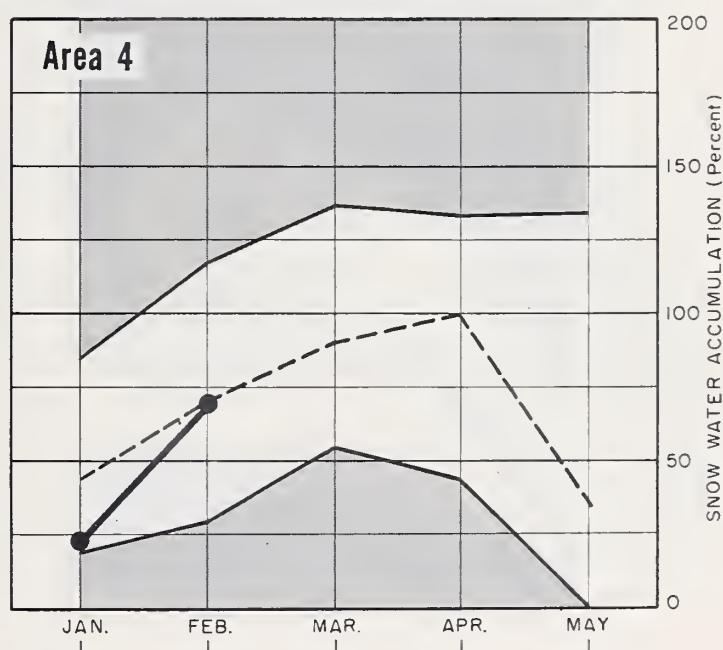
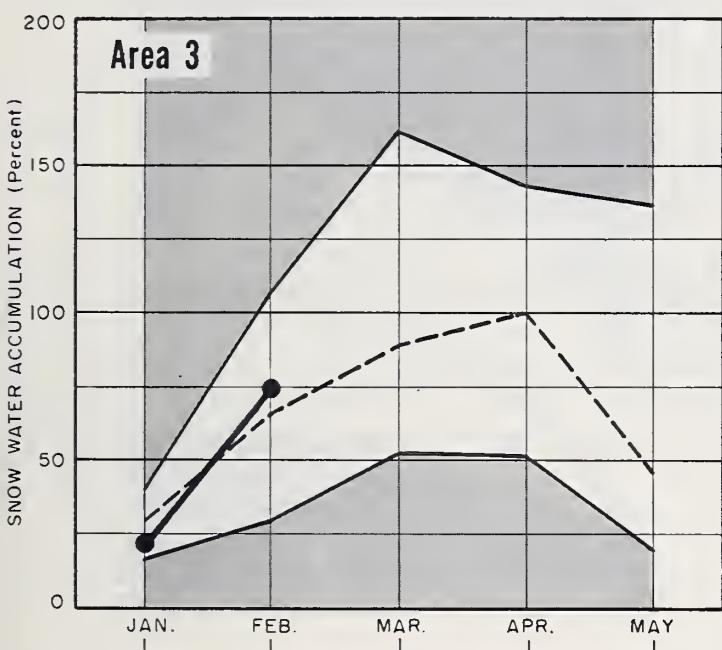
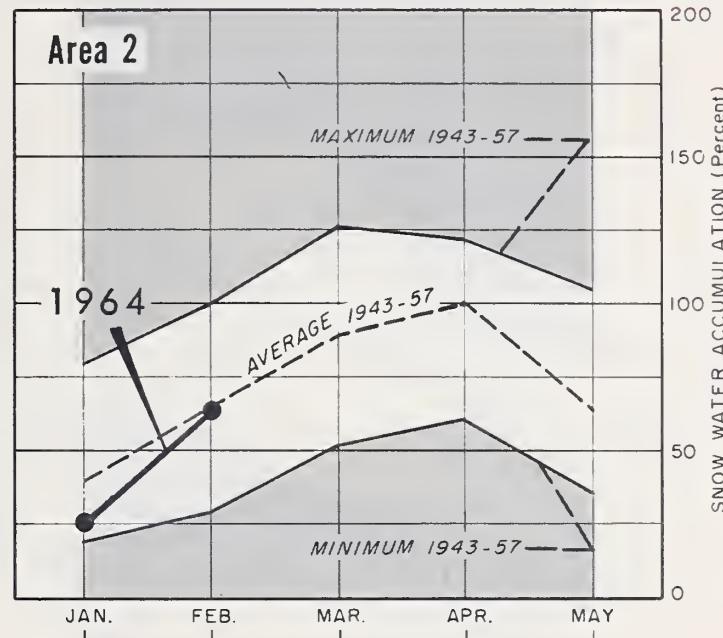
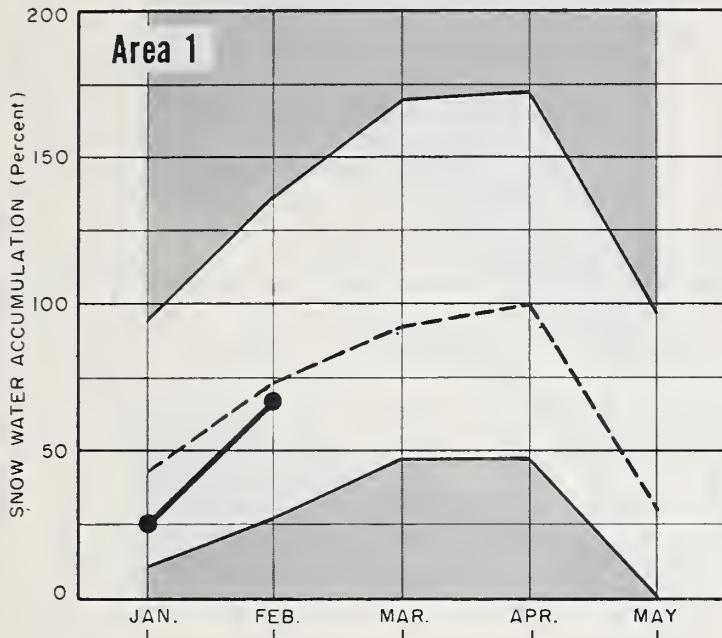
JANUARY 1, 1964



# SNOW WATER ACCUMULATION in OREGON

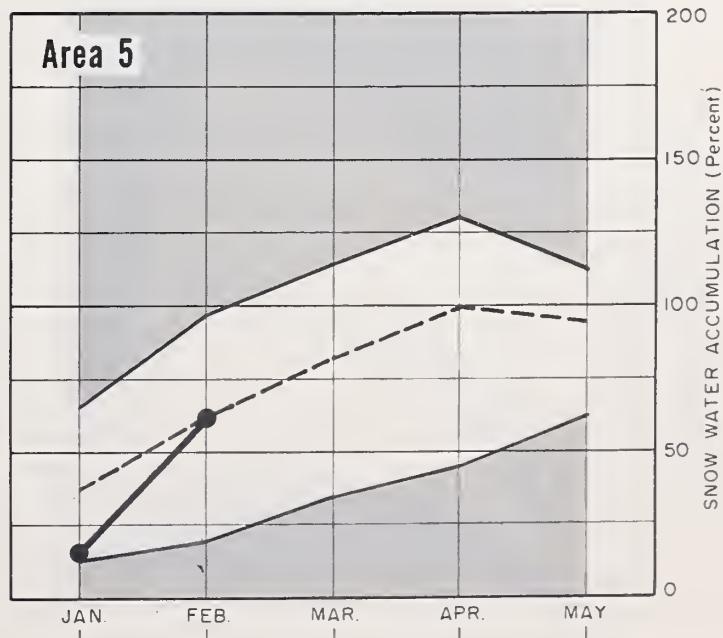
(Percent of average maximum accumulation)

FEBRUARY 1, 1964



WATERSHED AREA LOCATIONS

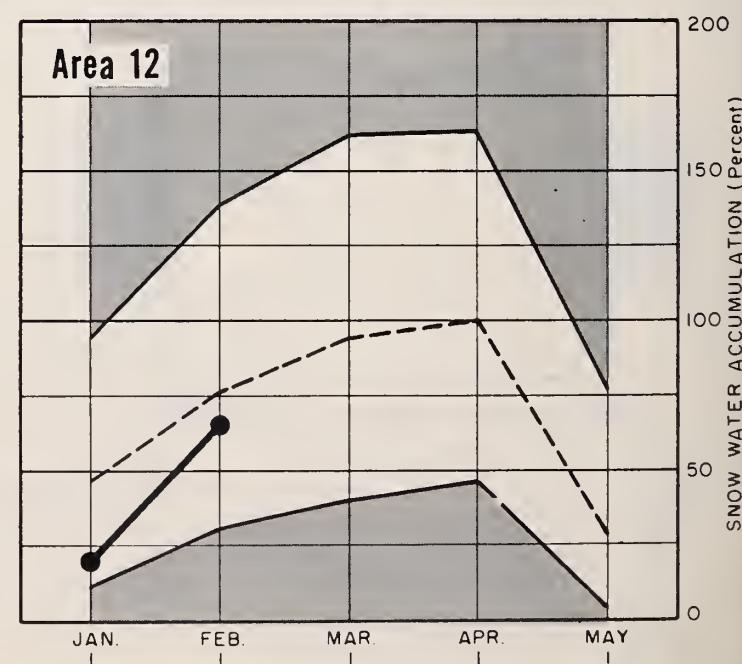
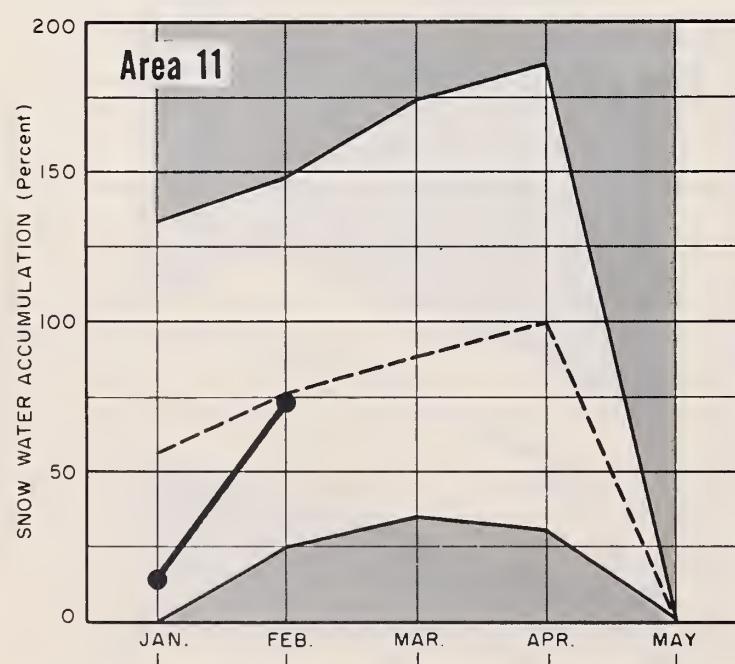
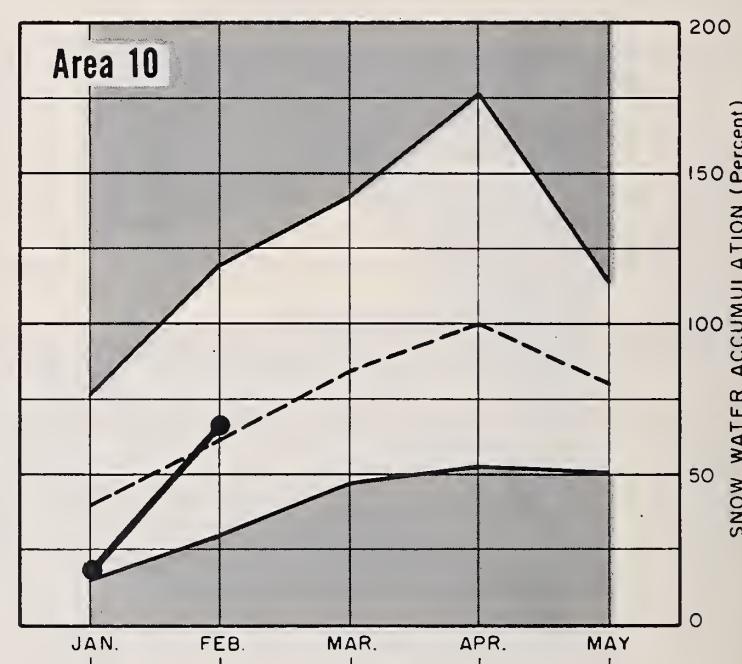
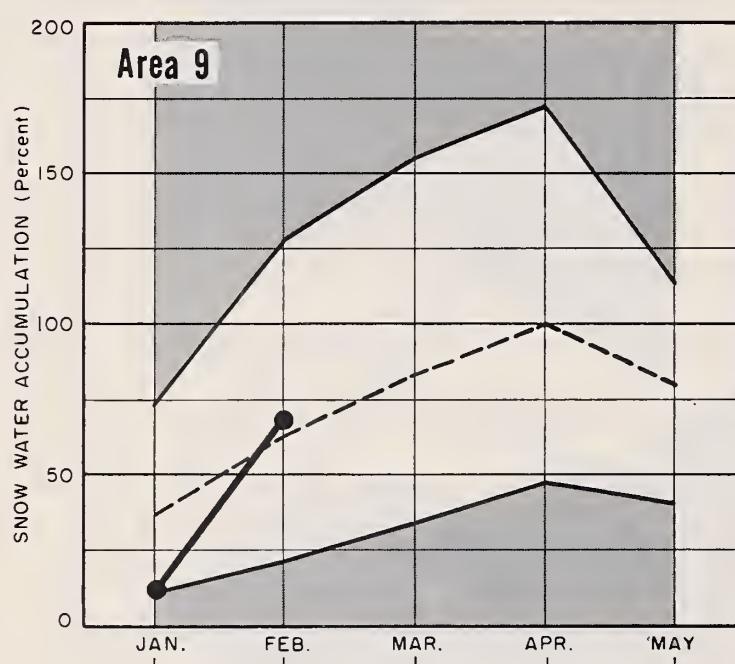
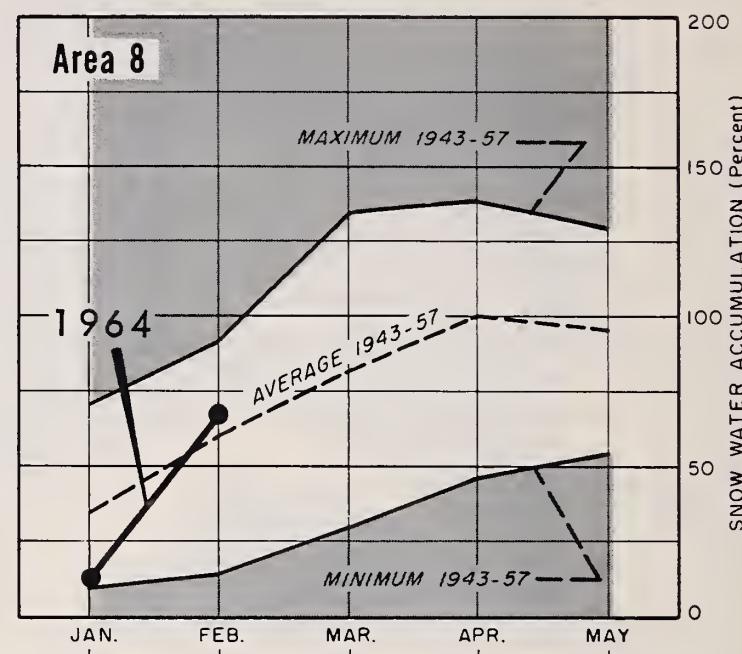
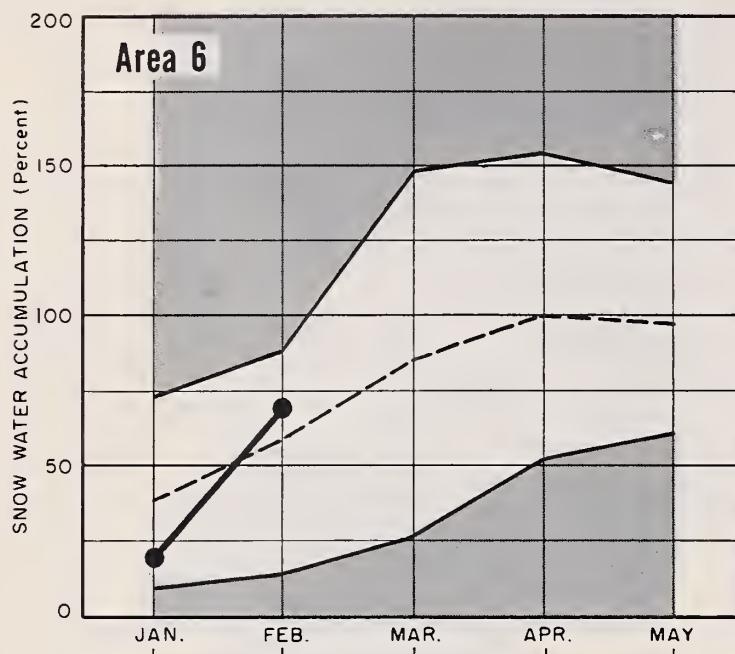
- AREA 1 - OYHEE, MALHEUR WATERSHEDS
- AREA 2 - BURNT, POWDER, PINE, GRANDE RONDE, IMNAHA WATERSHEDS
- AREA 3 - UMATILLA, WALLA WALLA, WILLOW, ROCK, LOWER JOHN DAY WATERSHEDS
- AREA 4 - UPPER JOHN DAY WATERSHEDS
- AREA 5 - UPPER DESCHUTES, CROOKED, WATERSHEDS
- AREA 6 - HOOD, MILE CREEKS, LOWER DESCHUTES WATERSHEDS
- AREA 7 - LOWER COLUMBIA WATERSHEDS
- AREA 8 - WILLAMETTE WATERSHEDS
- AREA 9 - ROGUE, UMPQUA WATERSHEDS
- AREA 10 - KLAMATH WATERSHEDS
- AREA 11 - LAKE COUNTY, GODSE LAKE WATERSHEDS
- AREA 12 - HARNEY BASIN WATERSHEDS



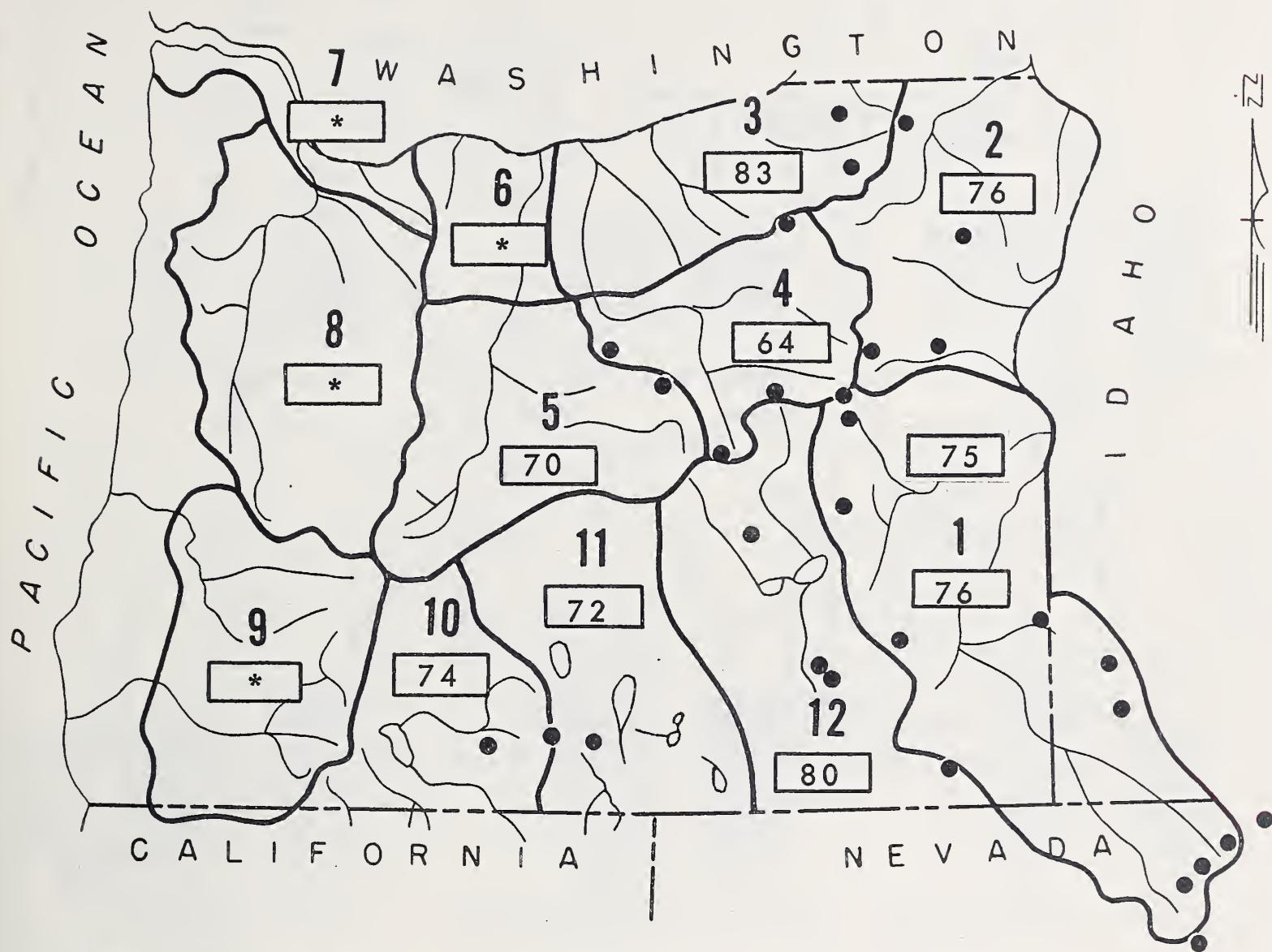
# SNOW WATER ACCUMULATION in OREGON

(Percent of average maximum accumulation)

FEBRUARY 1, 1964



MOUNTAIN SOIL MOISTURE in OREGON  
as percent of capacity  
FEBRUARY 1, 1964



● Soil Moisture Station

\*Moisture studies not yet developed in these areas.

# VALLEY PRECIPITATION in OREGON <sup>a</sup>

FEBRUARY 1, 1964



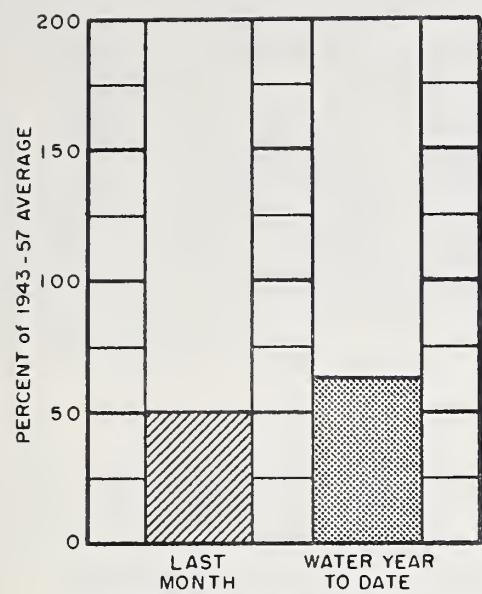
PRECIPITATION as PERCENT of the 1943-57 AVERAGE

STATION	LAST MONTH	WATER YEAR TO DATE <sup>b</sup>	STATION	LAST MONTH	WATER YEAR TO DATE <sup>b</sup>
BAKER APT.	169	107	LAKEVIEW	203	129
BEND	96	72	MEDFORD APT.	163	110
BURNS	139	97	NYSSA	167	122
ENTERPRISE	100	97	PENDLETON APT.	73	82
EUGENE APT	219	114	PORTLAND APT.	161	100
HEPPNER	103	82	ROSEBURG APT.	185	103
JOHN DAY	139	95	SALEM APT.	163	102
KLAMATH FALLS APT.	163	98	THE DALLES	105	85

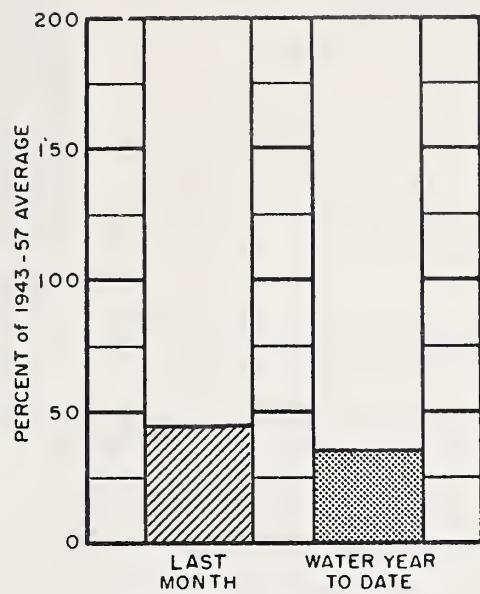
(a) Preliminary data furnished by the U.S. Weather Bureau. (b) Oct. 1 to date. (c) Report delayed.

# CURRENT OREGON STREAMFLOW

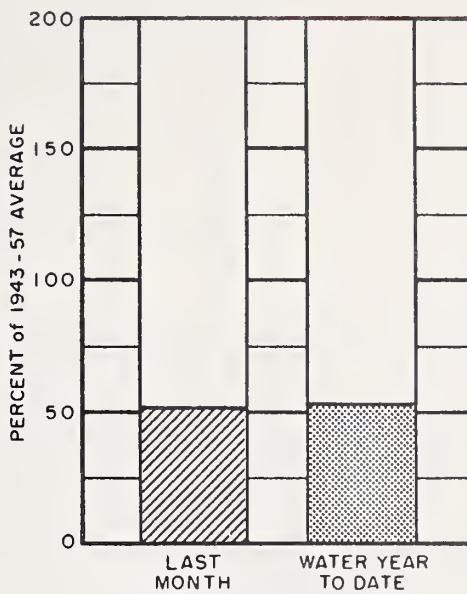
FEBRUARY 1, 1964



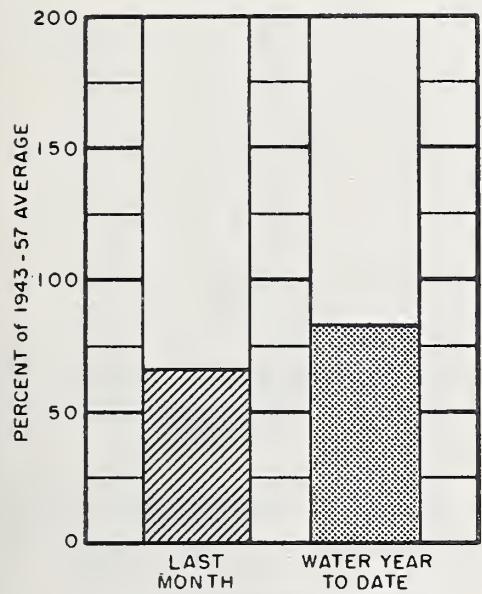
Owyhee Lake net inflow



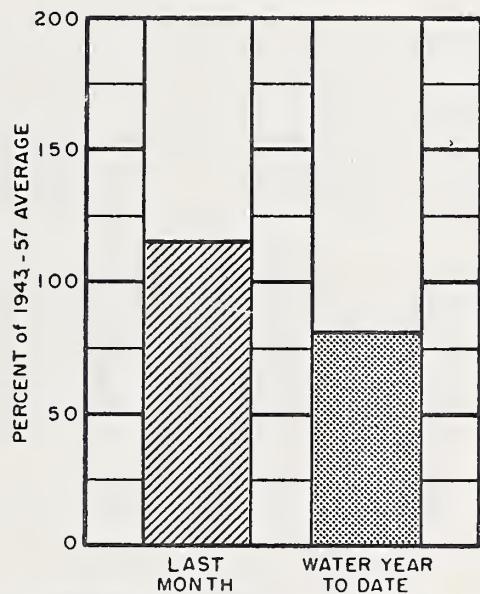
Umatilla near Umatilla



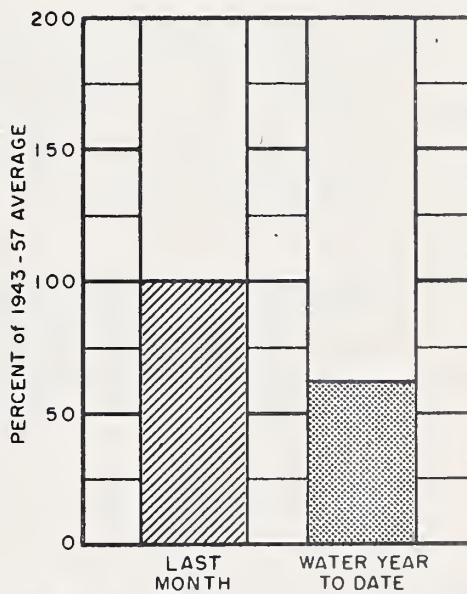
John Day at Service Creek



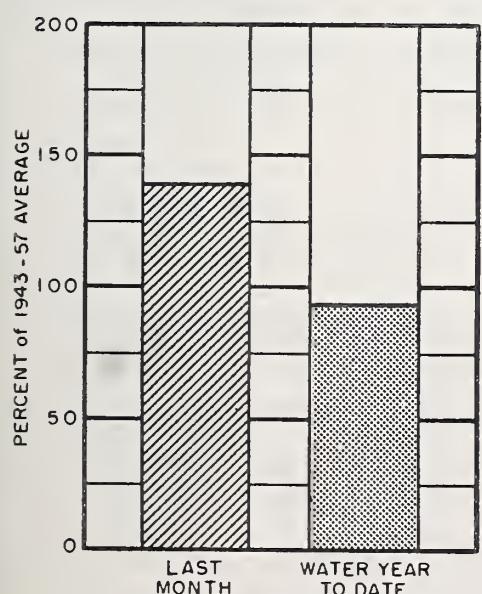
Deschutes at Moody



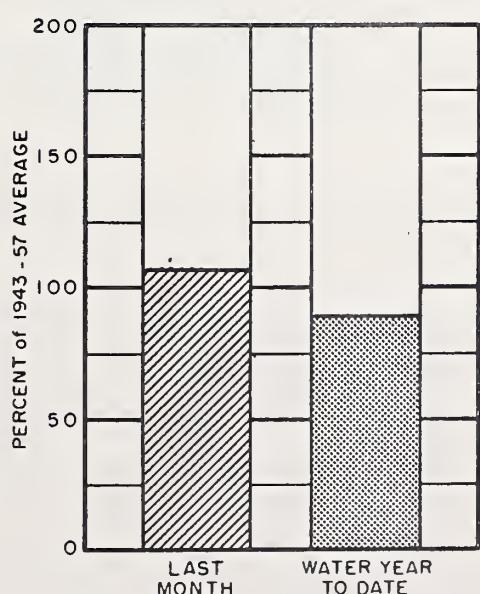
Hood and conduit near Hood River



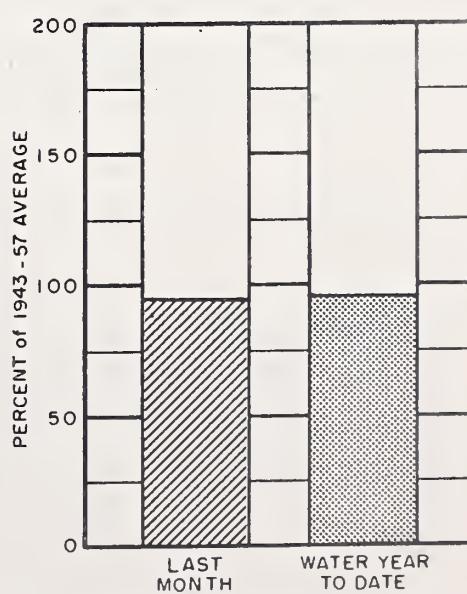
Mid. Fk. Willamette below No. Fk.



Umpqua near Elkton



Rogue at Raygold



Upper Klamath Lake net inflow



# WATER SUPPLY OUTLOOK OWYHEE, MALHEUR WATERSHEDS OREGON

*as of*

FEBRUARY 1, 1964

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U. S. D. A. SOIL CONSERVATION SERVICE  
OREGON STATE UNIVERSITY ... OREGON STATE ENGINEER

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**GENERAL OUTLOOK** - Improvement in a satisfactory outlook for 1964 water supplies in Malheur county was given further assurance by heavy January storms which brought substantial additions to the mountain snowpack and additional water to supplement the vital supplies stored in county reservoirs.

**SNOW COVER** - Water content of the mountain snowpack increased substantially from 68 percent of average on January 1 to 97 percent average on February 1. On the South Mountain course, the water content increased a total of 7.0 inches from 3.2 on December 29, 1963 to 10.2 inches on January 31, 1964. A normal January increase at this snow course is 3.3 inches.

Aerial flights over the broad plateau regions of the Owyhee revealed a substantial snow cover varying from 6" to 24". The heaviest cover was observed on the East Fork of the Owyhee where up to 30" of snow was found on the level. This equals the 1958 snow cover but falls short of the heavy snows of 1952.

**SOIL MOISTURE** - The soil mantle under the snowpack is well re-charged and averages about 75 percent of capacity on both the Owyhee and Malheur watersheds. This will favor a satisfactory runoff of snowmelt water.

**RESERVOIR STORAGE** - Lake Owyhee held 286,000 acre feet of water on February 1. This is 31 percent less than the 1943-57 average, but is about 69,000 acre feet more than last year at this time and provides an excellent base for the coming irrigation season.

Antelope Reservoir held 2,800 acre feet one month ago but no report of the February 1 storage was available.

Warmsprings Reservoir held 55,200 acre feet on February 1 and Agency Valley held 22,700 a.f. the same day with Bully Creek Reservoir reporting 5,800 acre feet. The total water stored for the Warmsprings and Vale-Oregon Irrigation Districts is 83,700 acre feet compared with 45,000 a.f. one year ago on February 1. If streamflow forecasts are verified, there will be a good water supply next summer.

**STREAMFLOW** - Inflow to Lake Owyhee is forecast at 700,000 acre feet or 118 percent average for the February-July period. The April-September inflow is forecast at 466,000 acre feet or 108 percent average.

*Continued*

*Report prepared by*

W.T. FROST AND BOB L. WHALEY

U. S. DEPARTMENT OF AGRICULTURE - SOIL CONSERVATION SERVICE

209 S.W. FIFTH AVENUE • PORTLAND 4, OREGON

The Malheur River near Drewsey is forecast to flow 121,000 acre feet or 98 percent average February through July. The April-September flow is set at 80,000 a.f. or 99 percent.

The North Fork of Malheur at Beulah is forecast to flow 65,000 acre feet or 102 percent average April through September.

Flow of most small streams heading in low-elevation watersheds will be near average following a normal snowmelt peak.

Flow of the Owyhee into Lake Owyhee\* has averaged only 68 percent from October 1 to date.

\* Preliminary data from North Board of Control, Nyssa, Oregon.

### WATER SUPPLY OUTLOOK expressed as "Poor", "Fair" "Average" or "Excellent"

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Boulder Creek	Average	Average
Bully Creek	Average	Average
Cow Creek	Average	Average
Jordan Creek	Average	Average
Jordan Valley Irrig. Dist.	Average	Average
McDermitt Creek	Average	Average
Oregon Canyon Creek	Average	Average
Owyhee Project	Average	Average
Succor Creek	Average	Average
Tenmile Creek	Average	Average
Vale Oregon Irrig. Dist.	Average	Average
Warmsprings Irrig. Dist.	Average	Average
Willow Creek (Reservoired)	Average	Average

### RESERVOIR STORAGE (1,000 Ac. Ft.) Feb. 1, 1964

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943-57 AVERAGE
Agency Valley	60.0	22.7	18.0	27.3
Antelope	55.0	b	b	5.1
Bully Creek	31.0	5.8	--	--
Owyhee	715.0	286.0	217.3	416.6
Warmsprings	191.0	55.2	36.7	64.8

### STREAMFLOW FORECASTS<sup>a</sup>(1,000 Ac. Ft.) as of February 1, 1964

NO.	FORECAST POINT NAME	FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE <sup>i</sup>
2140	Malheur near Drewsey	80	April-Sept.	81	99
		121	Feb.-July	124	98
2175	Malheur, North Fork at Beulah <sup>d</sup>	65	April-Sept.	64	102
1825	Owyhee Reservoir net inflow <sup>k</sup>	466	April-Sept.	430	108
		700	Feb.-July	594	118

### SOIL MOISTURE

STATION NAME	ELEVATION	PROFILE (Inches)		SOIL MOISTURE (Inches)		
		DEPTH	CAPACITY	DATE	THIS YEAR	LAST YEAR
Bear Creek (Nev.)	7800	72	16.9	11/1/63	9.6 <sup>f</sup>	11.4 <sup>f</sup>
Big Bend (Nev.)	6700	48	16.7	1/28/64	15.6	14.7
Blue Mountain Springs	5900	42	16.9	1/30/64	7.2	11.7
Crane Prairie	5375	48	18.2	1/30/64	14.6	16.5
Folly Farm	4450	30	12.5	12/19/63	8.3 <sup>f</sup>	9.0 <sup>f</sup>
Jack Creek, Lower (Nev.)	6800	48	8.7	1/2/64	8.0 <sup>f</sup>	7.3 <sup>f</sup>
Jordan Valley	4250	48	19.3	12/19/63	14.6 <sup>f</sup>	14.9 <sup>f</sup>
Mud Flat (Ida.)	5500	48	12.8	1/29/64	8.7	6.7
Rodeo Flat (Nev.)	6800	42	11.0	1/28/64	10.4	10.7
Stinking Water Summit	4800	48	21.9	12/19/63	20.8 <sup>f</sup>	20.9 <sup>f</sup>
Taylor Canyon	6200	48	15.1	1/27/64	12.6	11.6
Triangle (Ida.)	5150	48	16.2	1/29/64	11.5	12.6

### SNOW

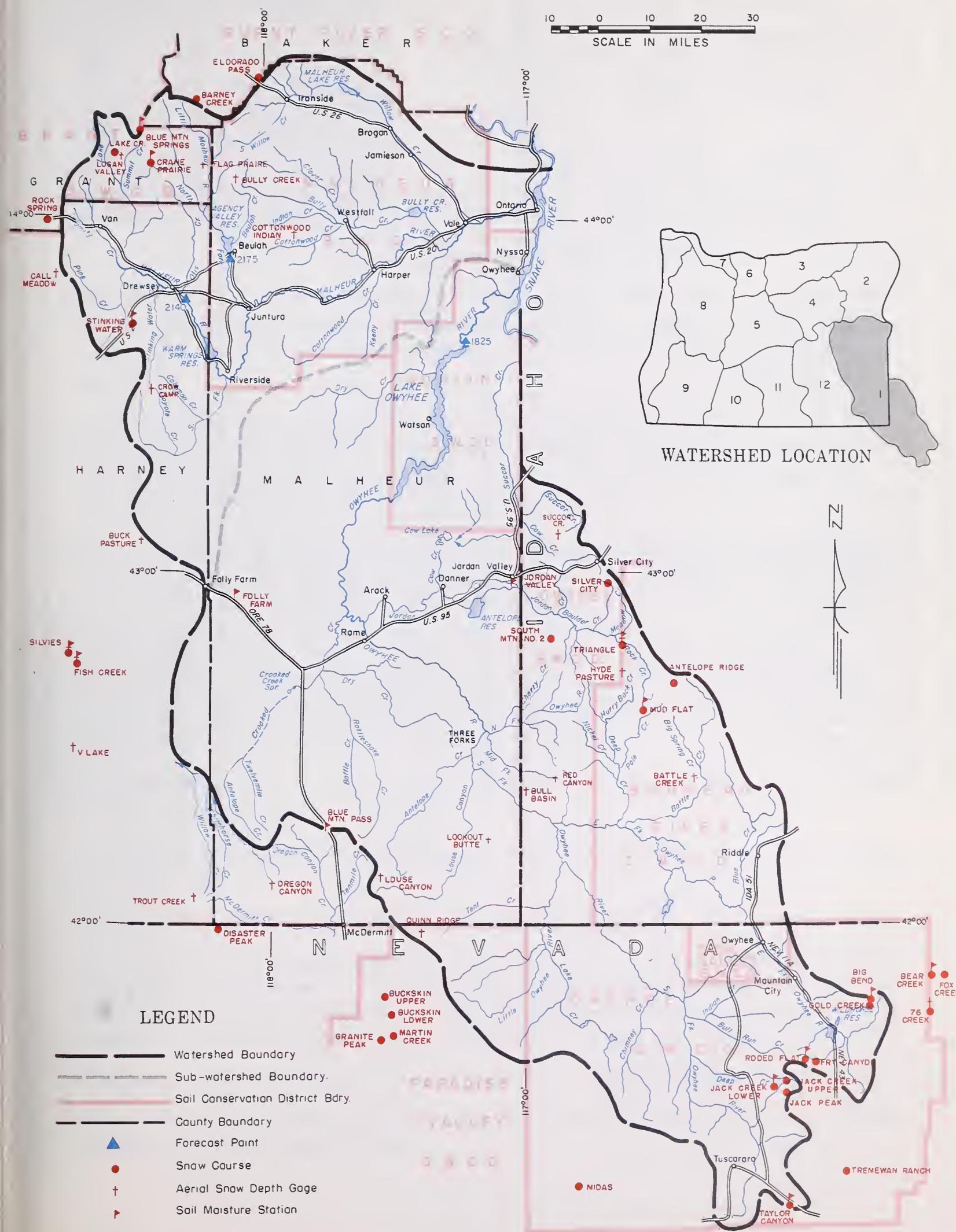
SNOW COURSE NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	CURRENT INFORMATION		PAST RECORD	
					LAST YEAR	1943-57 AVERAGE	LAST YEAR	1943-57 AVERAGE
Antelope Ridge (Ida.)	5900	1/29	30	9.7	T	--		
Barney Creek	5950	c						
Battle Creek e (Ida.)	5700	1/31	21	5.7	0.2	--		

Continued

(a) Assuming normal meteorological conditions. (b) No report. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage, water content estimated. (f) Nearest current data. (g) Partly estimated. (h) 1943-57 adjusted average. (i) 1943-57, 15 year average. (j) Telephonic report - data not confirmed. (k) Data from PP&L Co. or USBR records.

# OWYHEE, MALHEUR WATERSHEDS

10 0 10 20 30  
SCALE IN MILES



# Owyhee, Malheur Watersheds

## SNOW

SNOW COURSE		DATE OF SURVEY	CURRENT INFORMATION		PAST RECORD	
NAME	ELEVATION		SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)	LAST YEAR
Bear Creek <sup>e</sup> (Nev.)	7800	1/29	38	11.2	4.5	12.1 <sup>h</sup>
Big Bend (Nev.)	6700	1/28 <sup>j</sup>	36	8.3	T	6.9
Blue Mountain Springs	5900	1/30	46	10.8	3.7	11.4
Buck Pasture <sup>e</sup>	5700	2/2	20	4.8	0.0	--
Buckskin, Lower (Nev.)	6700	c				
Buckskin, Upper (Nev.)	7200	c				
Bull Basin <sup>e</sup> (Ida.)	5600	1/31	9	2.4	0.1	--
Bully Creek <sup>e</sup>	5300	2/2	15	3.3	0.0	--
Call Meadow <sup>e</sup>	5340	2/2	14	3.1	T	--
Cottonwood-Indian <sup>e</sup>	4320	2/2	10	2.2	0.0	--
Crane Prairie	5375	c				
Crow Camp <sup>e</sup>	5500	2/2	12	3.0	0.0	--
Disaster Peak (Nev.)	6500	c				
Eldorado Pass	4600	1/30	21	4.6	1.0	--
Fish Creek <sup>e</sup>	7900	2/2	60	14.4	5.2	--
Flag Prairie <sup>e</sup>	4750	2/2	27	5.9	0.0	--
Fox Creek (Nev.)	6800	c				
Fry Canyon (Nev.)	6700	1/28 <sup>j</sup>	27	5.5	T	6.5 <sup>h</sup>
Gold Creek (Nev.)	6600	1/28 <sup>j</sup>	29	7.0	0.0	4.1 <sup>h</sup>
Granite Peak (Nev.)	7800	1/30	22	6.2	6.8	8.1 <sup>h</sup>
Hyde Pasture <sup>e</sup> (Ida.)	5800	1/31	29	7.8	0.2	--
Jack Creek, Lower (Nev.)	6800	c				
Jack Creek, Upper <sup>e</sup> (Nev.)	7250	2/2	12	2.3	T	6.5 <sup>h</sup>
Jacks Peak (Nev.)	8420	c				
Lake Creek R. S.	5120	b				
Logan Valley <sup>e</sup>	5100	2/2	36	9.7	0.2	--
Lookout Butte <sup>e</sup>	5650	1/31	1	0.2	T	--
Louse Canyon <sup>e</sup>	6440	1/31	6	1.4	T	--
Martin Creek (Nev.)	6700	1/30	24	5.5	T	5.7
Midas <sup>e</sup> (Nev.)	7200	2/2	12	3.0	--	--
Mud Flat (Ida.)	5500	1/29	30	7.0	1.0	--
Oregon Canyon <sup>e</sup>	6950	1/31	20	4.8	T	--
Quinn Ridge <sup>e</sup> (Nev.)	6300	1/31	7	1.7	T	--
Red Canyon <sup>e</sup> (Ida.)	6500	1/31	27	7.3	0.2	--
Rock Spring	5100	1/28	21	4.6	0.9	4.7
Rodeo Flat (Nev.)	6800	1/28 <sup>j</sup>	21	4.8	T	6.4 <sup>h</sup>
76 Creek <sup>e</sup> (Nev.)	7100	2/2	27	6.8	T	8.3 <sup>h</sup>
Silver City (Ida.)	6400	1/29	45	11.8	3.5	11.0 <sup>h</sup>
Silvies <sup>e</sup>	6900	2/2	27	6.5	0.4	--
South Mountain #2 (Ida.)	6340	1/31	37	10.2	0.5	8.5
Stinking Water	4800	1/29	15	3.7	1.5	3.6 <sup>h</sup>
Succor Creek <sup>e</sup> (Ida.)	6100	1/31	24	6.5	0.0	--
Taylor Canyon (Nev.)	6200	1/27 <sup>j</sup>	20	4.2	T	4.1
Tremewan Ranch (Nev.)	5700	1/29 <sup>j</sup>	13	3.1	0.0	1.9 <sup>h</sup>
Triangle <sup>e</sup> (Ida.)	5150	1/31	8	2.2	0.0	--
Trout Creek <sup>e</sup>	7800	1/31	12	2.9	2.0	--
"V" Lake <sup>e</sup>	6600	1/31	8	1.9	0.0	--



# WATER SUPPLY OUTLOOK BURNT, POWDER, PINE, GRANDE RONDE, IMNAHA WATERSHEDS OREGON

*as of*  
**FEBRUARY 1, 1964**

**U. S. D. A. SOIL CONSERVATION SERVICE  
OREGON STATE UNIVERSITY ... OREGON STATE ENGINEER**

**GENERAL OUTLOOK** - Improvement in a "fairly good" 1964 water supply outlook for Baker, Union and Wallowa counties was given further assurance by heavy January storms which brought substantial additions to the mountain snowpack in these watersheds.

**SNOW COVER** - Water content of the mountain snowpack increased from about 70 percent average on January 1 to 97 percent average on February 1. Water content of the snow at Anthony Lake increased a total of 8.3 inches from 8.5 inches on December 27, 1963 to 16.8 inches on January 27, 1964.

**SOIL MOISTURE** - The soil mantle under the snowpack is still not as well re-charged as it was a year ago. The moisture averages 76 percent of capacity. Some snowmelt water will be absorbed to complete the re-charge.

**RESERVOIR STORAGE** - Reservoirs gained little additional water during January. Wallowa Lake has 21,800 acre feet in storage compared with 22,300 acre feet a year ago. Unity Reservoir contains 8,800 acre feet compared with 11,300 last year at this date. These figures are well above average.

**STREAMFLOW** - Forecasts of streamflow in this corner of the state vary between 89 and 102 percent of the 1943-57 average.

Burnt River is forecast to flow 46,000 acre feet or 102 percent average April through September.

Powder River should produce 66,000 acre feet or 100 percent in the same six months.

The Grande Ronde River is forecast to flow 190,000 acre feet or 94 percent average April through September. Tributaries of the Grande Ronde are forecast as follows for the six month period: Catherine Creek, 95 percent; Bear Creek, 92 percent; Lostine River, 92 percent; Hurricane Creek, 90 percent; and East Fork Wallowa, 89 percent.

The Imnaha River is forecast to flow 91 percent average for the April-September period.

Flow of most small streams heading in low-elevation watersheds will be near average following a normal snowmelt peak.

## WATER SUPPLY OUTLOOK

expressed as "Poor", "Fair",  
"Average" or "Excellent"

RESERVOIR STORAGE (1,000 Ac. Ft.) Feb. 1, 1964

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Alder Slope	Average	Average
Baker Valley	Average	Average
Big Creek	Average	Average
Clover Cr. (nr. No. Powder)	Average	Average
Cove	Average	Average
Durkee	Average	Average
Eagle Valley	Average	Average
Elgin	Average	Average
Enterprise-Joseph	Average	Average
Hereford-Bridgeport	Average	Average
Imnaha River	Average	Average
LaGrande-Island City	Average	Average
Lostine-Wallowa	Average	Average
No. Powder River-Wolf Cr.	Average	Average
Pine Valley	Average	Average
Powder River-Elk Creek	Average	Average
Summerville	Average	Average
Sumpter Valley	Average	Average
Union-Hot Lake	Average	Average
Unity	Average	Average

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943-57 AVERAGE
Unity	25.2	8.8	11.3	7.2
Wallowa Lake	37.5	21.8	22.3	15.9

STREAMFLOW FORECASTS<sup>a</sup>(1,000 Ac. Ft.) as of February 1, 1964

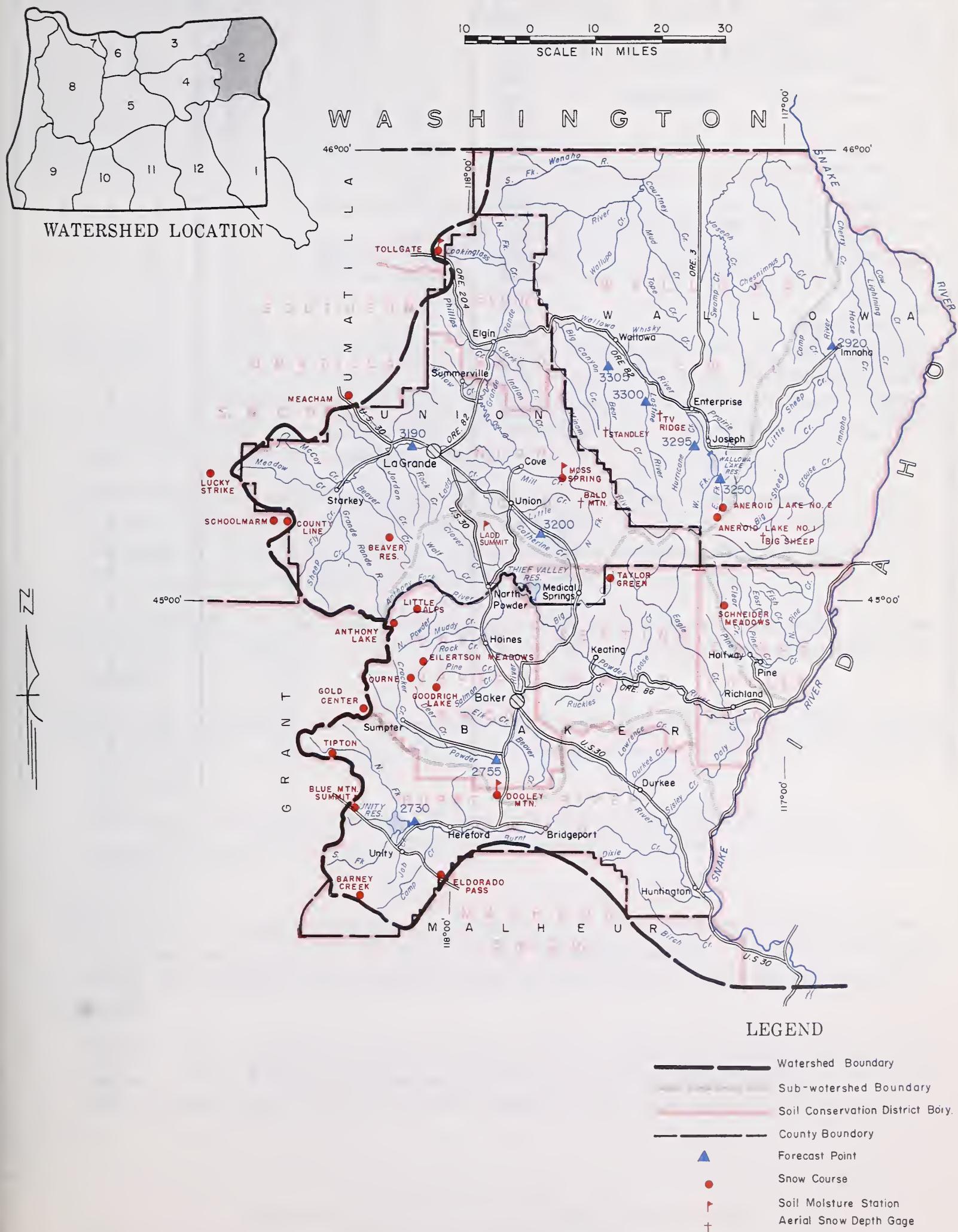
NO.	FORECAST POINT NAME	FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE		THIS YEAR AS PERCENT OF AVERAGE <sup>i</sup>
				FORECAST THIS YEAR	1943-57 AVERAGE	
3305	Bear near Wallowa	68	April-Sept.	74	92	
2730	Burnt near Hereford <sup>d</sup>	46	April-Sept.	45	102	
		56	Feb.-June	55	102	
3200	Catherine near Union	69	April-Sept.	73	95	
3190	Grande Ronde at LaGrande	235	March-Sept.	245	96	
		190	April-Sept.	202	94	
3295	Hurricane near Joseph	44	April-Sept.	49	90	
2920	Imnaha at Imnaha	285	April-Sept.	314	91	
3300	Lostine near Lostine	122	April-Sept.	133	92	
2755	Powder near Baker	66	April-Sept.	66	100	
		65	April-July	65	100	
3250	Wallowa, East Fork near Joseph <sup>d</sup>	10.8	April-Sept.	12.1	89	
		8.7	April-July	9.7	90	

## SOIL MOISTURE

STATION	PROFILE (Inches)		SOIL MOISTURE (Inches)			
	DEPTH	CAPACITY	DATE	THIS YEAR	LAST YEAR	2 YEARS AGO
NAME	ELEVATION					
Blue Mountain Summit	5100	36	1/30/64	9.3	11.7	7.0
Emigrant Springs	3925	48	1/28/64	19.2	18.9	18.3
Tollgate	5070	48	1/30/64	18.9	21.0	21.5

(a) Assuming normal meteorological conditions. (b) No report. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage, water content estimated. (f) Nearest current data. (g) Partly estimated. (h) 1943-57 adjusted average. (i) 1943-57, 15 year average. (j) Telephonic report - data not confirmed. (k) Data from PP&L Co. or USBR records.

# BURNT, POWDER, PINE, GRANDE RONDE, IMNAHA WATERSHEDS



Burnt, Powder, Pine, Grande Ronde, Imnaha Watersheds

**SNOW**

SNOW COURSE		CURRENT INFORMATION			PAST RECORD	
		DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)	LAST YEAR
NAME	ELEVATION					1943-57 AVERAGE
Aneroid Lake #1	7480.	1/26	80	21.5	15.3	24.4
Aneroid Lake #2	7000	1/25	65	18.1	12.6	19.2
Anthony Lake	7125	1/27	62	16.8	8.6	20.2 <sup>h</sup>
Bald Mountain <sup>e</sup> (Ore.)	6700	1/18	66	17.2	--	--
Barney Creek	5950	c				
Beaver Reservoir	5340	1/29	33	8.2	2.7	8.0
Big Sheep <sup>e</sup>	6200	1/26	54	14.6	9.0	--
Blue Mountain Summit	5098	1/29	31	6.8	2.5	6.6
Bourne	5800	1/30	50	10.9	2.6	11.9 <sup>h</sup>
County Line	4800	1/31	22	5.7	1.2	5.0
Dooley Mountain	5430	1/28	29	7.0	2.4	6.6
Eilertson Meadows	5400	1/27	37	8.8	2.4	8.7 <sup>h</sup>
Eldorado Pass	4600	1/30	21	4.6	1.0	--
Gold Center	5340	1/29	37	8.8	3.4	9.5 <sup>h</sup>
Goodrich Lake	6775	c				
Little Alps	6200	1/27	35	8.4	3.4	--
Lucky Strike	5050	1/29	38	9.0	2.9	9.1 <sup>h</sup>
Meacham	4300	1/28	31	9.4	1.8	7.1
Mirror Lake <sup>e</sup>	8200	1/26	157	42.4	32.4	--
Moss Spring	5850	1/28	55	14.4	4.0	17.1
Schneider Meadows	5400	1/29	81	18.0	9.7	21.6
Schoolmarm	4775	1/31	22	5.1	1.0	4.4 <sup>h</sup>
Standley <sup>e</sup>	7400	1/26	81	21.9	7.6	--
Taylor Green	5740	c				
Tipton	5100	1/29	39	8.2	2.6	8.4 <sup>h</sup>
Tollgate	5070	2/3	80	23.2	7.2	19.6
TV Ridge <sup>e</sup>	5670	1/26	14	3.8	1.1	--

"The Conservation of Water begins with the Snow Survey"



**WATER SUPPLY OUTLOOK  
UMATILLA, WALLA  
WALLA, WILLOW, ROCK,  
LOWER JOHN DAY  
WATERSHEDS  
OREGON**

*as of*  
**FEBRUARY 1, 1964**

**U. S. D. A. SOIL CONSERVATION SERVICE  
OREGON STATE UNIVERSITY ... OREGON STATE ENGINEER**

**GENERAL OUTLOOK** - Streamflow in Umatilla, Morrow and Gilliam counties during the 1964 irrigation season will be very close to average if snow continues to accumulate at normal rates and if the spring melting season is favorable for runoff. Stored water supplies are satisfactory except in McKay Reservoir which now holds 10,300 acre feet or 4,000 a.f. less than last year.

**SNOW COVER** - January storms piled up the snow at a heavy rate, raising the water content of the snowpack from 29 percent of average on January 1 to 110 percent by February 1. Water content of the snow at Tollgate increased from 8.6 inches to 23.2 inches for a new record of 14.6 inches increase in January.

**SOIL MOISTURE** - The soil mantle under the snowpack is well re-charged and averages 83 percent of capacity. This will favor a satisfactory runoff of snowmelt water next spring.

**RESERVOIR STORAGE** - Cold Springs Reservoir has 36,700 acre feet in storage compared with 32,700 a.f. a year ago at this date. Average storage on February 1 is 28,400 acre feet.

McKay Reservoir holds only 10,300 acre feet which is considerably less than the average figure of 33,700 a.f. It will be "nip and tuck" whether the reservoir fills this year.

**STREAMFLOW** - The Umatilla River at Pendleton is forecast to flow 192,000 acre feet or 103 percent average in the April through September period. The South Fork of the Walla Walla should flow 76,000 acre feet or 100 percent average for the same six months.

McKay Creek is forecast to flow 32,000 acre feet or 103 percent April through September. In the February-September period it should flow about 61,000 acre feet or 100 percent average. At this rate it is doubtful if the reservoir will fill this year.

*Report prepared by*

W.T. FROST AND BOB L. WHALEY

U. S. DEPARTMENT OF AGRICULTURE - SOIL CONSERVATION SERVICE

209 S.W. FIFTH AVENUE • PORTLAND 4, OREGON

Butter Creek is forecast to flow 14,500 acre feet or 103 percent average for the March-July period.

Flow of the Umatilla at Umatilla\* has been 45 percent average in January but only 33 percent average October 1 to date.

\* Preliminary data from U. S. Geological Survey, Portland, Oregon.

### WATER SUPPLY OUTLOOK expressed as "Poor", "Fair", "Average" or "Excellent"

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Birch Creek	Average	Average
Butter Creek	Average	Average
Dry Creek	Average	Average
Dugger Creek	Average	Average
Johnson Creek	Average	Average
McKay Creek	Average	Average
Mill Creek	Average	Average
Mud Creek	Average	Average
Pine Creek	Average	Average
Rhea Creek	Average	Average
Rock Creek	Average	Average
Umatilla River (Cold Springs Reservoir)	Average	Average
Umatilla River, Main	Average	Average
Umatilla River (McKay Res.)	Average	Fair
Walla Walla River, Little	Average	Average
Walla Walla River, Main	Average	Average
Walla Walla River, No. Fork	Average	Average
Walla Walla River, So. Fork	Average	Average
Willow Creek	Average	Average

### RESERVOIR STORAGE (1,000 Ac. Ft.) Feb. 1, 1964

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943-57 AVERAGE
Cold Springs McKay	50.0 73.8	36.7 10.3	32.7 14.3	28.4 33.7

### STREAMFLOW FORECASTS<sup>a</sup> (1,000 Ac. Ft.) as of February 1, 1964

NO.	FORECAST POINT NAME	FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE <sup>i</sup>
0320	Butter Creek near Pine City	14.5	March-July	14.0	103
0225	McKay near Pilot Rock	61	Feb.-Sept.	61	100
		32	April-Sept.	31	103
0200	Umatilla near Gibbon	98	April-Sept.	96	102
0210	Umatilla at Pendleton	192	April-Sept.	187	103
		188	April-July	182	103
0100	Walla Walla, South Fork near Milton	76	April-Sept.	76	100
		63	April-July	62	102

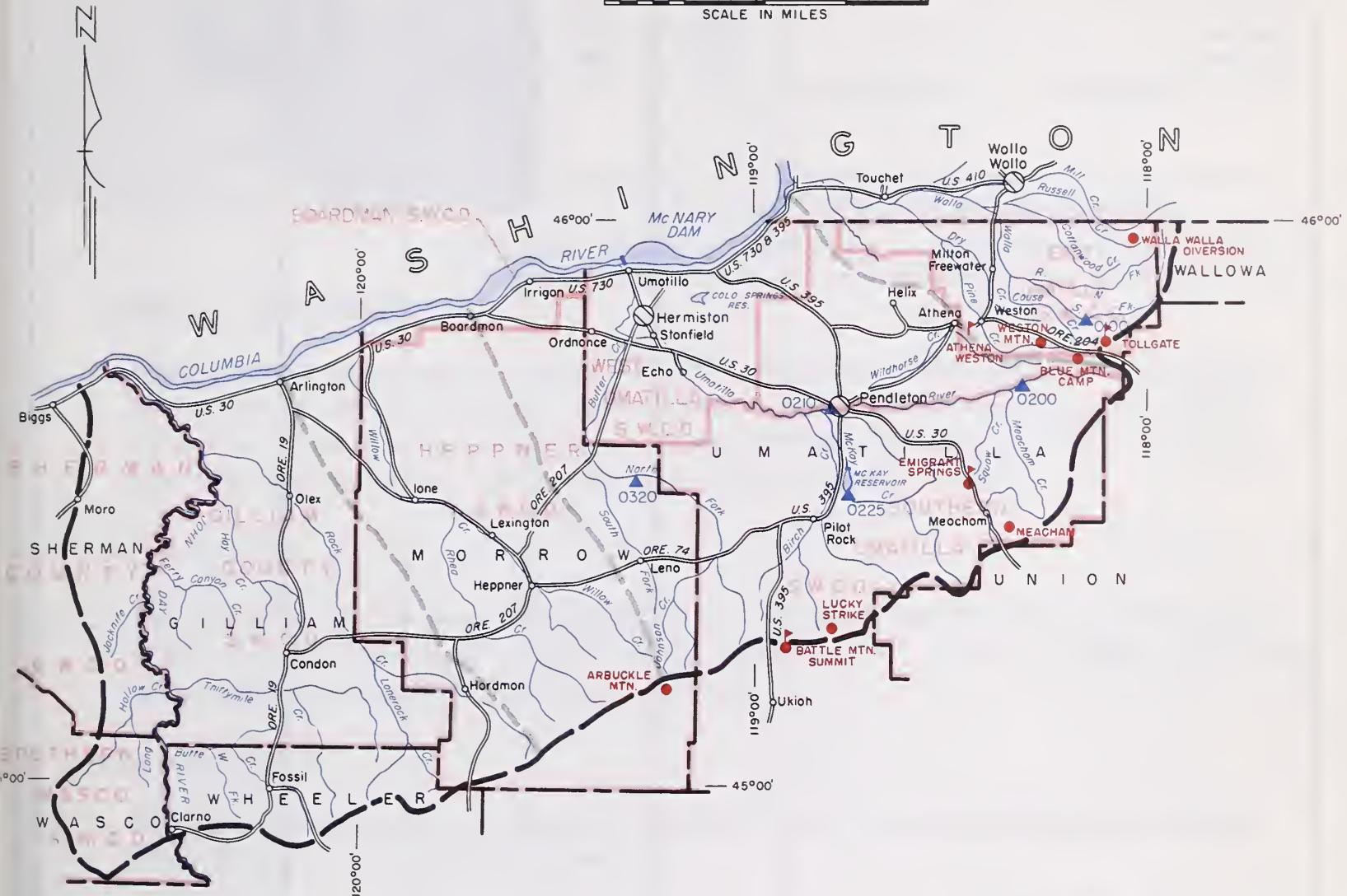
### SOIL MOISTURE

STATION NAME	ELEVATION	PROFILE (Inches)		SOIL MOISTURE (Inches)		
		DEPTH	CAPACITY	DATE	THIS YEAR	LAST YEAR
Athena-Weston	1700	48	18.7	1/30/64	14.3	16.7
Battle Mountain Summit	4340	48	13.8	1/27/64	12.5	11.9
Emigrant Springs	3925	48	22.3	1/28/64	19.2	18.9
Tollgate	5070	48	23.6	1/30/64	18.9	21.0

(a) Assuming normal meteorological conditions. (b) No report. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage, water content estimated. (f) Nearest current data. (g) Partly estimated. (h) 1943-57 adjusted average. (i) 1943-57, 15 year average. (j) Telephonic report - data not confirmed. (k) Data from PP&L Co. or USBR records.

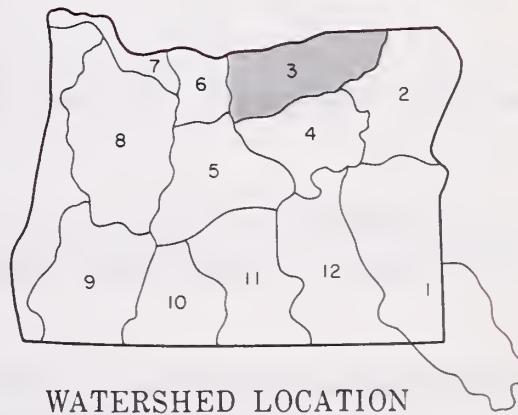
# UMATILLA, WALLA WALLA, WILLOW, ROCK, LOWER JOHN DAY WATERSHEDS

10 0 10 20 30  
SCALE IN MILES



## LEGEND

- Watershed Boundary
- Sub-watershed Boundary
- Soil Conservation District Bdry.
- County Boundary
- ▲ Forecast Point
- Snow Course
- Soil Moisture Station



WATERSHED LOCATION

Umatilla, Walla Walla, Willow, Rock, Lower John Day Watersheds

**SNOW**

SNOW COURSE		DATE OF SURVEY	CURRENT INFORMATION		PAST RECORD	
NAME	ELEVATION		SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)	LAST YEAR
Arbuckle Mountain	5400	1/27	34	8.4	1.2	8.5
Battle Mountain Summit	4340	1/27	10	1.9	0.5	--
Blue Mountain Camp	4300	1/30	55	15.8	1.9	--
Emigrant Springs	3925	1/28	20	5.4	1.4	6.1 <sup>h</sup>
Lucky Strike	5050	1/29	38	9.0	2.9	9.1 <sup>h</sup>
Meacham	4300	1/28	31	9.4	1.8	7.1
Tollgate	5070	2/3	80	23.2	7.2	19.6
Weston Mountain	2700	1/30	2	0.6	0.6	--

*"The Conservation of Water begins with the Snow Survey"*



# WATER SUPPLY OUTLOOK UPPER JOHN DAY WATERSHEDS OREGON

*as of*  
**FEBRUARY 1, 1964**

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**U. S. D. A. SOIL CONSERVATION SERVICE  
OREGON STATE UNIVERSITY ... OREGON STATE ENGINEER**

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## GENERAL OUTLOOK

A satisfactory water supply outlook for 1964 irrigation in the Upper John Day Basin now seems assured as a result of major January storms which made unusually heady additions to the mountain snowpack. Watershed soils are only partially re-charged under the snowpack and will absorb some of the snowmelt water.

## SNOW COVER

Water content of the mountain snowpack has increased rapidly from only 61 percent of the January 1 average to 95 percent of the February 1 average. Just one year ago the snowpack was only 27 percent of average.

## SOIL MOISTURE

Moisture in watershed soils under the snowpack has increased slightly, but remains about 10 percent drier than last year.

## STREAMFLOW

Flow of the John Day at Service Creek\* has averaged only 52 percent in the period October 1 to date.

Forecasts indicate average conditions of flow of the John Day at Prairie City are expected in the April-September period. The March-July flow is forecast at 103 percent of the 15 year average (1943-57).

The Middle Fork of the John Day is forecast at 103 percent and Strawberry Creek should flow about 87 percent average in the irrigation season.

Flow of most small streams heading in low-elevation watersheds will be near average following a normal snowmelt peak.

Good water supplies for all of the John Day country seem assured if snow continues to accumulate at normal rates and if the spring melting season is favorable for runoff.

\* Preliminary data from U. S. Geological Survey, Portland, Oregon.

# WATER SUPPLY OUTLOOK

expressed as "Poor", "Fair",  
"Average" or "Excellent"

# RESERVOIR STORAGE (1,000 Ac. Ft.) Feb. 1, 1964

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Beech Creek	Average	Average
Beech Creek-Fox-Long Cr.	Average	Average
Bridge-Mountain Creeks	Average	Average
Camas Creek	Average	Average
Cherry Creek	Average	Average
Indian-Pine Creeks	Average	Average
John Day River, Main Fork	Average	Average
John Day River, Mid. Fork	Average	Average
John Day River, N. Fork	Average	Average
John Day River, S. Fork	Average	Average
Monument-Kimberly	Average	Average
Strawberry Creek	Average	Average

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943-57 AVERAGE

## STREAMFLOW FORECASTS<sup>a</sup>(1,000 Ac. Ft.) as of February 1, 1964

NO.	FORECAST POINT NAME	FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE <sup>i</sup>
				AVERAGE	AS PERCENT OF AVERAGE <sup>i</sup>
0385	John Day at Prairie City	54 61	April-Sept. March-July	54 59	100 103
0440	John Day, Middle Fork at Ritter	139 163	April-Sept. March-July	135 158	103 103
0375	Strawberry near Prairie City	7.9	April-Sept.	9.1	87

## SOIL MOISTURE

STATION	PROFILE (Inches)		SOIL MOISTURE (Inches)			
	DEPTH	CAPACITY	DATE	THIS YEAR	LAST YEAR	2 YEARS AGO
Battle Mountain Summit	4340	48	13.8	1/27/64	12.5	11.9
Blue Mountain Springs	5900	42	16.9	1/30/64	7.2	11.7
Blue Mountain Summit	5100	36	16.8	1/30/64	9.3	11.7 <sup>f</sup>
Derr	5670	24	9.0	9/25/63	4.3 <sup>f</sup>	3.9 <sup>f</sup>
Marks Creek	4540	36	14.1	1/30/64	9.3	10.1
Snow Mountain	6300	48	16.7	1/29/64	12.2	13.4
Starr Ridge	5150	36	10.6	1/29/64	8.1	10.4

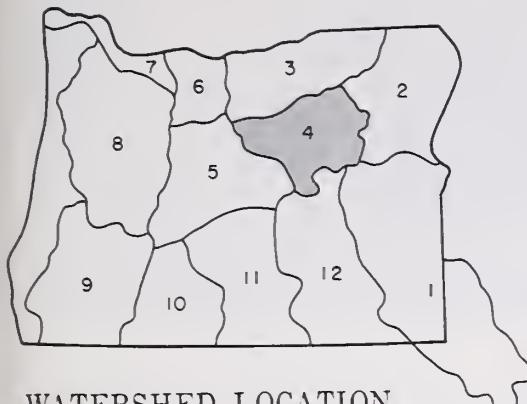
## SNOW

SNOW COURSE	CURRENT INFORMATION			PAST RECORD	
	DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)	
NAME				LAST YEAR	1943-57 AVERAGE
Anthony Lake	7125	1/27	62	16.8	8.6
Arbuckle Mountain	5400	1/27	34	8.4	1.2
Battle Mountain Summit	4340	1/27	10	1.9	0.5
Beech Creek Summit	4800	1/29	17	4.6	1.0
Blue Mountain Springs	5900	1/30	46	10.8	3.7
Blue Mountain Summit	5098	1/29	31	6.8	2.5
Derr	5670	1/23	27	5.3	1.2
East Fork Canyon <sup>e</sup>	5700	c			7.4
Gold Center	5340	1/29	37	8.8	3.4
Indian Creek Butte <sup>e</sup>	6550	c			9.5 <sup>h</sup>
Izee Summit	5293	1/29	26	6.4	1.8
Lucky Strike	5050	1/29	38	9.0	2.9
Marks Creek	4540	1/30	19	4.4	0.0
Ochoco Meadows	5200	1/29	29	7.6	0.6
Olive Lake	6000	1/30	52	13.8	3.2
Schoolmarm	4775	1/31	22	5.1	1.0
Snow Mountain	6300	1/29	36	9.1	2.8
Starr Ridge	5150	1/29	20	5.2	1.3
Tipton	5100	1/29	39	8.2	2.6
Williams Ranch	4500	c			8.4 <sup>h</sup>

(a) Assuming normal meteorological conditions. (b) No report. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage, water content estimated. (f) Nearest current data. (g) Partly estimated. (h) 1943-57 adjusted average. (i) 1943-57, 15 year average. (j) Telephonic report - data not confirmed. (k) Data from PP&L Co. or USBR records.

# UPPER JOHN DAY WATERSHEDS

10 0 10 20 30  
SCALE IN MILES



WATERSHED LOCATION



## LEGEND

- Watershed Boundary
- Sub-watershed Boundary
- Soil Conservation District Bdry.
- County Boundary
- ▲ Forecast Point
- Snow Course
- Soil Moisture Station
- + Aerial Snow Depth Gage

# Upper John Day Watersheds

*"The Conservation of Water begins with the Snow Survey"*



# WATER SUPPLY OUTLOOK UPPER DESCHUTES, CROOKED WATERSHEDS OREGON

*as of*  
**FEBRUARY 1, 1964**

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**U. S. D. A. SOIL CONSERVATION SERVICE**  
**OREGON STATE UNIVERSITY ... OREGON STATE ENGINEER**

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**GENERAL OUTLOOK** - The 1964 water supply outlook for Deschutes, Jefferson and Crook counties is now satisfactory as a result of heavy increases in the water content of the mountain snowpack occurring during major January storms. Watershed soils are still only partly re-charged with moisture but stored water supplies are satisfactory.

**SNOW COVER** - Water content of the snowpack increased rapidly from the 41 percent average of January 1 to February 1 figures of 88 percent on the Crooked River and 102 percent on Deschutes watersheds.

**SOIL MOISTURE** - Moisture in watershed soils under the snowpack increased only slightly during January and remains at 70 percent of capacity which means some snowmelt water will be absorbed as runoff begins.

**RESERVOIR STORAGE** - Crooked River reservoirs, Ochoco and Prineville, contain 23,400 and 104,500 acre feet as of February 1. Prineville storage will soon be reduced to about 93,000 after gate repairs are completed. Total water available will provide adequate supplies for irrigation next summer.

Deschutes River reservoirs now contain the following satisfactory amounts of irrigation water: Wickiup, 146,400 acre feet; Crescent Lake, 50,100 acre feet; and Crane Prairie (not measured) probably about 35,000 acre feet or more.

**STREAMFLOW** - Flow of the Deschutes at Moody\* was 65 percent average in January and has been 83 percent in the period October 1 to date.

Crooked River is forecast to flow 185,000 acre feet or 89 percent in the February-July period. Inflow to Ochoco Reservoir is expected to be 50,000 in the February-June period or 98 percent average.

Squaw and Tumalo Creeks are forecast to flow 104 and 100 percent of average, respectively which should be a good water supply.

Flow of the Deschutes at Benham Falls is forecast at 365,000 a.f. or 90 percent for the April-July period which should provide reasonably good water supplies. Upstream from this station are the following forecasts for the April-September period: Little Deschutes near Lapine, 99,000 a.f. for 88 percent; Crescent Creek, 30,000 a.f. for 97 percent; Odell Creek, 32,000 a.f. for 94 percent; Crane Prairie Reservoir inflow, 142,000 a.f. for 99 percent; and Deschutes below Snow Creek, 71,000 a.f. for 96 percent.

Flow of most small streams heading in low-elevation watersheds will be near average following a normal snowmelt peak.

\* Preliminary data from U. S. Geological Survey, Portland Oregon.

### WATER SUPPLY OUTLOOK expressed as "Poor", "Fair", "Average" or "Excellent"

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Arnold Irrigation District	Average	Average
Bear Creek	Average	Average
Beaver Creek	Average	Average
Camp Creek	Average	Average
Central Ore. Irrig. Dist.	Average	Average
Crooked River	Average	Average
Deschutes River	Average	Average
Hay-Trout Creeks	Average	Average
Lone Pine Irrig. Dist.	Average	Average
Mill Creek	Average	Average
North Unit Irrig. Dist.	Average	Average
Ochoco Creek	Average	Average
Sisters Irrigation Dist.	Average	Average
Snow Creek Irrig. Dist.	Average	Average
Squaw Creek Irrig. Dist.	Average	Average
Swalley Ditch	Excellent	Excellent
Tumalo Project	Average	Average
Walker Basin Irrig. Dist.	Average	Average

### RESERVOIR STORAGE (1,000 Ac. Ft.) Feb. 1, 1964

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943-57 AVERAGE
Crane Prairie	55.3	b	39.4	41.2
Crescent Lake	117.2	50.1	61.4	46.1
Ochoco	47.5	23.4	28.2	25.0
Prineville	153.0	104.5	92.3	--
Wickiup	182.0	146.4	151.1	122.4

Note: Current storage figure for Crescent Lake includes 5360 acre feet of known dead and inactive storage.

### STREAMFLOW FORECASTS<sup>a</sup> (1,000 Ac. Ft.) as of February 1, 1964

NO.	FORECAST POINT NAME	FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE		THIS YEAR AS PERCENT OF AVERAGE <sup>i</sup>
				1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE <sup>i</sup>	
0535	Crane Prairie Reservoir total inflow	142	April-Sept.	143	99	
0600	Crescent at Crescent Lake <sup>d</sup>	28	March-July	28	100	
		30	April-Sept.	31	97	
0795	Crooked near Post	185	Feb.-July	207	89	
		120	April-Sept.	129	93	
0645	Deschutes at Benham Falls <sup>d</sup>	530	April-Sept.	602	88	
		365	April-July	404	90	
0500	Deschutes below Snow Creek	71	April-Sept.	74	96	
0630	Deschutes, Little near Lapine <sup>d</sup>	112	Feb.-July	129	87	
		99	April-Sept.	113	88	
0848	Ochoco Reservoir net Inflow	50	Feb.-June	51	98	
		30	April-Sept.	32	94	
0555	Odell near Crescent	32	April-Sept.	34	94	
0750	Squaw near Sisters	57	April-Sept.	55	104	
0730	Tumalo near Bend <sup>d</sup>	55	April Sept.	55	100	

### SOIL MOISTURE

STATION	PROFILE (Inches)		SOIL MOISTURE (Inches)			
	DEPTH	CAPACITY	DATE	THIS YEAR	LAST YEAR	2 YEARS AGO
NAME	ELEVATION					
Derr	5670	24	9.0	9/25/63	4.3 <sup>f</sup>	3.9 <sup>f</sup>
Marks Creek	4540	36	14.1	1/30/64	9.3	10.1
Snow Mountain	6300	48	16.7	1/29/64	12.2	13.4

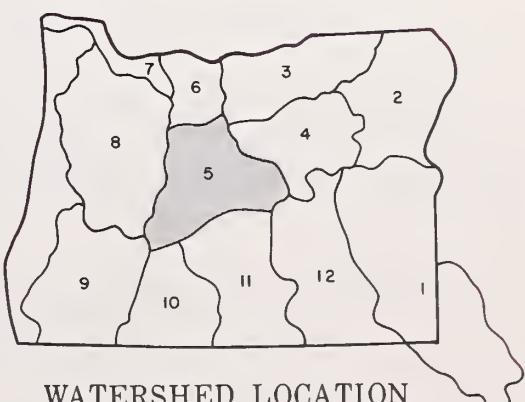
(a) Assuming normal meteorological conditions. (b) No report. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage, water content estimated. (f) Nearest current data. (g) Partly estimated. (h) 1943-57 adjusted average. (i) 1943-57, 15 year average. (j) Telephonic report - data not confirmed. (k) Data from PP&L Co. or USBR records.

# UPPER DESCHUTES, CROOKED WATERSHEDS

10 0 10 20 30  
SCALE IN MILES

## LEGEND

- Watershed Boundary
- Sub-watershed Boundary
- Soil Conservation District Bdry.
- County Boundary
- Forecast Point
- Snow Course
- Soil Moisture Station



WATERSHED LOCATION

# Upper Deschutes, Crooked Watersheds

## SNOW

SNOW COURSE		CURRENT INFORMATION			PAST RECORD	
		DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)	LAST YEAR
NAME	ELEVATION					1943-57 AVERAGE
Black Pine Spring	4600	1/27	17	5.4	1.6	5.0 <sup>h</sup>
Caldwell Ranch	4400	1/28	30	8.4	0.0	9.6 <sup>h</sup>
Cascade Summit	4880	1/29	71	21.8	5.8	24.4
Chemult	4760	1/27	35	8.5	1.3	10.0
Derr	5670	1/23	27	5.3	1.2	7.4
Fire Road	5050	1/22	27	5.0	0.0	- -
Hogg Pass	4755	1/27	105	32.5	7.0	32.3
Hungry Flat	4400	1/30	21	6.0	1.6	7.3 <sup>h</sup>
Irish-Taylor	5500	1/28	93	29.0	6.1	28.6 <sup>h</sup>
Marks Creek	4540	1/30	19	4.4	0.0	4.1
Mowich	4700	1/30	19	4.8	0.0	- - <sup>h</sup>
New Crescent Lake	4800	1/30	46	13.6	T	13.3 <sup>h</sup>
New Dutchman Flat #2	6400	1/30	116	39.4	11.6	35.9 <sup>h</sup>
Ochoco Meadows	5200	1/29	29	7.6	0.6	8.1
Paulina Lake	6330	1/22	56	13.7	5.4	- -
Paulina Prairie	4285	1/20	22	5.8	0.0	- -
Snow Mountain	6300	1/29	36	9.1	2.8	- -
Tamarack	4800	1/22	21	4.0	0.5	- -
Tangent	5400	1/30	67	19.0	3.8	18.5 <sup>h</sup>
Three Creeks Butte	5200	1/27	33	11.4	1.8	- -
Three Creeks Meadows	5600	1/27	52	15.2	3.2	14.7 <sup>h</sup>
Waldo Lake	5500	1/28	81	23.9	3.2	22.6 <sup>h</sup>
Willamette Pass	5600	1/30	105	31.8	9.1	29.3 <sup>h</sup>
Windigo Pass	5800	1/31	108	33.0	8.9	30.4 <sup>h</sup>

# WATER SUPPLY OUTLOOK HOOD, MILE CREEKS, LOWER DESCHUTES WATERSHEDS OREGON

*as of*  
**FEBRUARY 1, 1964**

**U. S. D. A. SOIL CONSERVATION SERVICE  
OREGON STATE UNIVERSITY ... OREGON STATE ENGINEER**

## GENERAL OUTLOOK

Greater than average increases to the snowpack on watersheds of Hood River and Wasco counties has raised the water supply outlook from "fair" to "average". Soil moisture improved and is expected to aid in the production of slightly greater than average streamflow for the irrigation season.

## SNOW COVER

January storms brought substantially heavier than average increases to the snowpack. Snow measurements taken about February 1 average 104 percent of the 1943-57 average as compared to only 18 percent at this time last year. Phlox Point snow course, near Timberline Lodge, had a remarkable increase during January of 86 inches of snow depth and 33.7 inches of water content.

## SOIL MOISTURE

January precipitation improved the soil moisture at elevations below the snow line while adding to the snowpack higher on the slopes. Watershed soils are fairly well primed and should aid runoff.

## RESERVOIR STORAGE

Clear Lake still reports no usable storage while last year at this time it held 3,500 acre feet of water for summer irrigation use.

## STREAMFLOW

Streamflow for the irrigation season is expected to be slightly above average.

Hood River at Hood River is forecast to flow 381,000 acre feet or 104 percent of average for the April-September period. Hood River, West Fork, is expected to flow 190,000 acre feet or 109 percent and the White River 195,000 acre feet or 110 percent of average for the same April-September period.

The January flow of Hood River\* was 114 percent of average bringing the October-January flow to 80 percent of average for water year to date.

\* Preliminary streamflow data from U. S. Geological Survey, Portland, Oregon.

# WATER SUPPLY OUTLOOK

expressed as "Poor", "Fair"  
"Average" or "Excellent"

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Aldridge Ditch	Average	Average
Badger Creek	Average	Average
Dee Irrigation District	Average	Average
East Fork Irrig. Dist.	Average	Average
Farmers Irrig. Dist.	Average	Average
Hood River Irrig. Dist.	Average	Average
Juniper Flat Irrig. Dist.	Fair	Poor
Middle Fork Irrig. Dist.	Average	Average
Mile Creeks	Average	Average
Mill Creek	Average	Average
Mount Hood Irrig. Dist.	Average	Average
Rock-Gate-Threemile Crs.	Average	Average
Tygh Creek	Average	Average
White River	Average	Average

# RESERVOIR STORAGE (1,000 Ac. Ft.) Feb. 1, 1964

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943-57 AVERAGE
Clear Lake	11.8	0.0	3.5	--

## STREAMFLOW FORECASTS<sup>a</sup>(1,000 Ac. Ft.) as of February 1, 1964

NO.	FORECAST POINT NAME	FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE <sup>i</sup>
1210	Hood River near Hood River <sup>d</sup>	381	April-Sept.	365	104
		327	April-July	311	105
1185	Hood, West Fork near Dee	190	April-Sept.	174	109
		165	April-July	151	109
1015	White below Tygh Valley	195	April-Sept.	178	110
		176	April-July	161	109

## SNOW

SNOW COURSE	CURRENT INFORMATION			PAST RECORD				
	NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)	LAST YEAR	1943-57 AVERAGE
Brooks Meadows	4300	c						
Clear Lake	3500	1/30	25	8.2	0.7	8.8 <sup>h</sup>		
Clear Lake (Experimental)	3500	1/30	36	13.4	1.0	--		
Cooper Spur	3490	1/31	24	9.8	2.0	--		
Greenpoint Reservoir	3400	1/30	35	16.0	T	14.3 <sup>h</sup>		
Knebal Springs	3850	c						
Lambert Point <sup>e</sup>	7000	b						
Parkdale	1770	1/31	0	0.0	1.6	--		
Phlox Point	5600	1/31	133	50.8	13.6	43.5		
Red Hill	4400	2/2	86	34.8	4.2	34.7 <sup>h</sup>		
Still Creek	3700	1/30	52	18.8	3.5	19.3		
Switchback	3255	2/3	33	14.1	3.2	--		
Tilly Jane	6000	1/26	86	30.1	5.4	31.5 <sup>h</sup>		
Ulrich Ranch Junction	3350	c						
Umbrella Falls	5400	b						
Upper Valley	2530	1/31	10	3.8	1.4	--		

(a) Assuming normal meteorological conditions. (b) No report. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage, water content estimated. (f) Nearest current data. (g) Partly estimated. (h) 1943-57 adjusted average. (i) 1943-57, 15 year average. (j) Telephonic report - data not confirmed. (k) Data from PP&L Co. or USBR records.

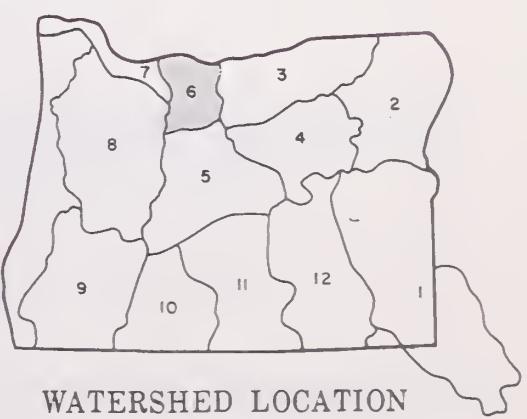
# HOOD, MILE CREEKS, LOWER DESCHUTES WATERSHEDS

10 0 10 20  
SCALE IN MILES



## LEGEND

- Watershed Boundary
- Sub-watershed Boundary
- Soil Conservation District Bdry.
- County Boundary
- ▲ Forecast Point
- Snow Course
- ↑ Aerial Snow Depth Gage
- 🚩 Soil Moisture Station



WATERSHED LOCATION

Hood, Mile Creeks, Lower Deschutes Watersheds

*"The Conservation of Water begins with the Snow Survey"*

# WATER SUPPLY OUTLOOK LOWER COLUMBIA WATERSHEDS OREGON

*as of*  
**FEBRUARY 1, 1964**

**U. S. D. A. SOIL CONSERVATION SERVICE  
OREGON STATE UNIVERSITY ... OREGON STATE ENGINEER**

## GENERAL OUTLOOK

The 1964 streamflow prospects are for near average flow on the main stem of the Columbia with slightly less than average on the Upper Snake and Clark Fork near the Continental Divide. Water supply outlook is relatively good throughout the basin for both power and irrigation assuming average climatic conditions for the remainder of the snow accumulation season. Irrigation and power storage reservoir levels are almost average and substantially higher than for a year ago.

## SNOW COVER

January increase in snowpack was near a maximum of record in the Cascade Range of Washington and Oregon and near average along the Continental Divide. Snow accumulation to February 1 ranges from about 80 to 90 percent of average on the headwaters of the Snake and Clark Fork to 125 percent of average for the Yakima, Lewis and Cowlitz watersheds.

## SOIL MOISTURE

Soil moisture now tends to be above average except for mountain areas close to the Continental Divide in Montana, Idaho and Wyoming.

## STREAMFLOW

The flow of the Columbia at The Dalles\* has been less than average since October 1. Streamflow over the upper basin, particularly on the Snake River tributaries has been deficient.

The record by months is as follows:

<u>Month</u>	<u>Percent of Average Discharge (1943-57)</u>			
October	87	adjusted for storage		
November	85	"	"	"
December	74	"	"	"
January	79	"	"	"

\* From preliminary data furnished by Current Records Center, U. S. Geological Survey, Portland, Oregon.

**STREAMFLOW FORECASTS<sup>a</sup>(1,000 Ac. Ft.) as of February 1, 1964**

FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE <sup>i</sup>
NO.	NAME				
1057	Columbia at The Dalles	106,700 73,200	April-Sept. April-June	106,100 72,000	101 101

**HISTORICAL DATA (Columbia River at The Dalles)**

YEAR	STREAMFLOW <sup>d</sup> (1,000 A.F.)			PEAK (1,000 c.f.s.)	DATE
	APR.—SEPT.	APR.—JUNE	MAY—JUNE		
1943	115,000	75,300	52,400	541	June 21
1944	61,900	39,200	32,100	326	June 19
1945	81,600	54,600	47,300	505	June 8
1946	108,100	75,400	59,600	581	May 30
1947	100,300	70,000	56,800	536	May 11
1948	130,500	94,600	81,900	999	May 31
1949	95,700	71,400	56,000	622	May 18
1950	120,400	74,700	61,200	744	June 25
1951	113,000	75,600	59,100	597	May 26
1952	107,700	77,500	57,300	557	May 28
1953	100,600	64,900	55,800	609	June 17
1954	119,500	70,500	59,300	561	May 23
1955	99,500	58,300	50,300	545	June 26
1956	131,400	96,900	75,800	815	June 3
1957	105,700	80,500	67,200	700	May 22
1943-57 Avg.	106,100	72,000	58,100	616	
1958	97,700	72,000	58,600	593	May 31
1959	112,500	71,900	58,900	555	June 23
1960	97,000	64,000	48,000	442	June 6
1961	101,400	74,400	64,000	699	June 8
1962	94,600	64,100	49,200	460	June 5

**LOWER COLUMBIA RIVER FLOOD STAGES (with 9.5' tide at Astoria)**

VANCOUVER GAGE (Weather Bu.)	FLOW AT THE DALLES (1,000 c.f.s.)	DRAINAGE DISTRICT PUMPHOUSE						
		SANDY	SAUVIE ISL.	SCAPPOOSE	DEER ISL.	RAINIER	BEAVER	WOODSON
		118.9	96.0	91.0	77.0	62.0	52.0	47.0
35 (1894)	1210	41.2	34.2	33.3	28.5	21.9	17.5	15.5
34	1160	40.5	33.5	32.5	27.7	21.2	17.0	15.0
33	1100	39.6	32.4	31.4	26.7	20.2	16.1	14.3
32	1050	38.9	31.5	30.5	25.7	19.5	15.4	13.7
31 (1948)	1000	38.0	30.7	29.5	25.1	18.8	14.7	13.0
30	940	36.6	29.5	28.5	24.3	18.1	14.0	12.4
29	890	35.5	28.5	27.7	23.7	17.5	13.4	11.8
28	840	34.3	27.5	26.7	22.8	17.0	13.0	11.4
27 (1956)	790	33.0	26.5	25.6	21.8	16.2	12.5	11.0
26 (1950)	750	32.1	25.5	24.6	20.9	15.5	12.2	10.7
25	700	30.7	24.2	23.2	19.7	14.6	11.7	10.3
24	660	29.7	23.0	22.2	19.0	14.1	11.4	10.2
23	630	29.0	22.3	21.4	18.4	13.6	11.2	10.0
22	590	28.1	21.4	20.3	17.2	13.0	10.9	9.7
21	560	27.2	20.7	19.5	16.4	12.6	10.6	9.6
20	530	26.2	19.8	18.6	15.5	12.1	10.2	9.4
19	510	25.5	19.2	18.0	15.0	11.8	10.0	9.3
18	480	24.4	18.3	17.2	14.3	11.4	9.8	9.1
17	450	23.4	17.4	16.4	13.7	11.0	9.6	8.9
16	430	22.4	16.5	15.5	13.0	10.5	9.3	8.7

(a) Assuming normal meteorological conditions. (b) No report. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage, water content estimated. (f) Nearest current data. (g) Partly estimated. (h) 1943-57 adjusted average. (i) 1943-57, 15 year average. (j) Telephonic report - data not confirmed. (k) Data from PP&L Co. or USBR records.

# LOWER COLUMBIA WATERSHEDS

10 0 10 20 30  
SCALE IN MILES



WATERSHED LOCATION

## LEGEND

- Watershed Boundary
- Sub-watershed Boundary
- Soil Conservation District Bdry.
- County Boundary
- (50) River Miles
- Snow Course

# Lower Columbia Watersheds



*"The Conservation of Water begins with the Snow Survey"*



# WATER SUPPLY OUTLOOK WILLAMETTE WATERSHEDS OREGON

*as of*  
**FEBRUARY 1, 1964**

**U. S. D. A. SOIL CONSERVATION SERVICE  
OREGON STATE UNIVERSITY ... OREGON STATE ENGINEER**

## GENERAL OUTLOOK

Near record increases to the snowpack during January improved the water supply outlook for the Willamette Valley to "near average". Reservoir storage increased and streamflow forecasts for the irrigation season indicate about average flows are expected.

## SNOW COVER

Substantially greater than average increases to the snowpack along the summit of the Cascades resulted from January storms. Snow measurements, taken about February 1, show the water content of the snowpack on Willamette watersheds increased from 26 percent of average on January 1 to 104 percent of average on February 1. Last year at this time it was only 17 percent of the 1943-57 average.

Phlox Point snow course, near Timberline Lodge, gained 86 inches of snow depth and 33.7 inches of water content during the month of January. This is a record increase for January and approaches the all-time record for a single month increase.

## SOIL MOISTURE

Heavy precipitation during January finished priming the soil below the snow line. Willamette watershed soils are expected to have good water yield from spring snow melt and precipitation.

## RESERVOIR STORAGE

The seven multi-purpose reservoirs operated by the Corps of Engineers on Willamette tributaries are well ahead of last year at this time and will be filled according to a pre-determined flood control schedule as the runoff progresses.

## STREAMFLOW

The Middle Fork of the Willamette\* flowed 100 percent of average during January but the October 1 to date flow has been only 62 percent of average.

*Continued*

Forecasts for streamflow, during the irrigation season April-September, range from 93 percent on the Clackamas to 99 percent on the McKenzie. The Willamette at Salem is expected to flow about 95 percent of average or 5,178,000 for the April-September period.

- \* Preliminary data furnished by U. S. Geological Survey, Portland, Oregon.

### WATER SUPPLY OUTLOOK

expressed as "Poor", "Fair"  
"Average" or "Excellent"

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Calapooya	Average	Average
Clackamas	Average	Average
McKenzie	Average	Average
Molalla	Average	Average
Santiam, North	Average	Average
Santiam, South	Average	Average
Willamette, Coast Fork	Average	Average
Willamette, Middle Fork	Average	Average

### RESERVOIR STORAGE (1,000 Ac. Ft.)

Feb. 1, 1964

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943-57 AVERAGE
Cottage Grove	30.8*	0.1	0.7	0.5
Cougar	219.3*	9.5	--	--
Detroit	299.9*	36.3	0.3	27.9
Dorena	70.5*	6.5	3.1	2.6
Fern Ridge	94.2*	42.5	5.9	19.3
Hills Creek	249.0*	33.5	1.2	--
Lookout Point	337.2*	27.1	1.6	--
Timothy Lake	61.6	46.1	50.0	50.0

\*Multiple purpose reservoir--space reserved primarily for flood runoff.

### STREAMFLOW FORECASTS<sup>a</sup>(1,000 Ac. Ft.) as of February 1, 1964

NO.	FORECAST POINT NAME	FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE
				AVERAGE	
2080	Clackamas at Big Bottom	172	April-Sept.	184	93
		141	April-July	150	94
2100	Clackamas at Estacada	870	April-Sept.	879	99
		765	April-July	763	100
2095	Clackamas above Three Lynx	670	April-Sept.	674	99
		576	April-July	578	100
1590	McKenzie at McKenzie Bridge	636	April-Sept.	640	99
		488	April-July	488	100
1625	McKenzie near Vida	1344	April-Sept.	1362	99
		1111	April-July	1120	99
2090	Oak Grove Fork above Power Intake	192	April-Sept.	198	97
		151	April-July	156	97
1545	Row near Dorena	109	April-Sept.	114	96
		104	April-July	109	95
1830	Santiam, North at Mehama <sup>d</sup>	927	April-Sept.	968	96
		830	April-July	866	96
1875	Santiam, South at Waterloo	640	April-Sept.	652	98
		610	April-July	616	99
1480	Willamette, Mid. Fk. blw. N. Fk. nr. Oakridge	885	April-Sept.	909	98
		796	April-July	804	99
1910	Willamette at Salem <sup>d</sup>	5178	April-Sept.	5461	95
		4627	April-July	4942	94

(a) Assuming normal meteorological conditions. (b) No report. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage, water content estimated. (f) Nearest current data. (g) Partly estimated. (h) 1943-57 adjusted average. (i) 1943-57, 15 year average. (j) Telephonic report - data not confirmed. (k) Data from PP&L Co. or USBR records.

# WILLAMETTE WATERSHEDS



# Willamette Watersheds

## SNOW

SNOW COURSE		DATE OF SURVEY	CURRENT INFORMATION		PAST RECORD	
NAME	ELEVATION		SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)	LAST YEAR
Big Bottom	2118	1/31	18	6.1	1.2	5.9 <sup>h</sup>
Cascade Summit	4880	1/29	71	21.8	5.8	24.4
Champion	4500	1/30	75	23.5	2.4	20.1
Clackamas Lake	3400	c				
Clear Lake	3500	1/30	25	8.2	0.7	8.8 <sup>h</sup>
Clear Lake (Experimental)	3500	1/30	36	13.4	1.0	--
Dead Horse Grade	3800	1/29	43	14.9	T	16.0 <sup>h</sup>
Detroit Town	1610	1/27	6	2.0	0.5	3.1 <sup>h</sup>
Detroit Dam	1580	1/27	0	0.0	0.8	1.2 <sup>h</sup>
Golden Curry Creek	3136	1/30	26	9.0	T	6.8 <sup>h</sup>
Hogg Pass	4755	1/27	105	32.5	7.0	32.3
Lake Harriet	2045	1/31	12	3.8	1.1	3.8 <sup>h</sup>
Laying Creek	1200	1/30	0	0.0	0.0	T
Lost Creek Ranch	1956	1/29	22	7.2	0.0	5.3 <sup>h</sup>
Lund Park	1740	1/30	0	0.0	0.0	1.9 <sup>h</sup>
Marion Forks	2730	b	Snowpack disturbed		0.9	11.7
Marys Peak	3620	2/2	23	9.0	0.0	8.7 <sup>h</sup>
McCredie Springs	2120	1/29	0	0.0	0.1	1.6 <sup>h</sup>
McKenzie	4800	1/29	103	35.1	5.2	33.4 <sup>h</sup>
McKenzie Bridge	1372	1/29	0	0.0	0.0	2.1 <sup>h</sup>
Meridian Dam	750	1/29	0	0.0	0.0	0.0 <sup>h</sup>
Mill City	826	1/27	0	0.0	0.5	T <sup>h</sup>
Oakridge	1310	1/29	0	0.0	0.1	T <sup>h</sup>
Peavine Ridge	3500	1/31	51	16.3	2.1	13.9
Phlox Point	5600	1/31	133	50.8	13.6	43.5
Railroad Overpass	2750	1/29	16	5.4	0.6	4.2 <sup>h</sup>
Salt Creek Falls	4000	1/29	41	14.1	0.7	13.1 <sup>h</sup>
Santiam Junction	3990	1/27	70	20.7	1.1	19.7
Still Creek	3700	1/30	52	18.8	3.5	19.3
Timothy Lake	3295	b				
Vida	800	1/29	0	0.0	0.0	T <sup>h</sup>
Waldo Lake	5500	1/28	81	23.9	3.2	22.6 <sup>h</sup>
Weaver Creek	2440	1/30	7	2.3	0.0	2.1
White Branch Slide	2800	1/29	22	8.4	0.0	6.8 <sup>h</sup>
Whitewater Bridge	2175	1/27	22	6.1	0.8	6.3 <sup>h</sup>
Willamette Pass	5600	1/30	105	31.8	9.1	29.3 <sup>h</sup>

"The Conservation of Water begins with the Snow Survey"



# WATER SUPPLY OUTLOOK ROGUE, UMPQUA, WATERSHEDS OREGON

*as of*  
FEBRUARY 1, 1964

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U. S. D. A. SOIL CONSERVATION SERVICE  
OREGON STATE UNIVERSITY ... OREGON STATE ENGINEER

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**GENERAL OUTLOOK** - Substantially above average increases to the snowpack during January have improved the water supply outlook to "near average" for the Rogue and Umpqua basins. Reservoir storage is well above average and streamflow is expected to be near the 1943-57 average.

**SNOW COVER** - Water content of the snowpack had a near record increase during January. Measurements taken about February 1 indicate about 104 percent of the average snow water on the watersheds. January 1 measurements showed only 42 percent of average. Last year on February 1 it was only 22 percent of average.

**SOIL MOISTURE** - Watershed soils gained moisture from rains below the snow line during January and should be well primed to produce good runoff from snowmelt.

**RESERVOIR STORAGE** - Stored water supplies of the Medford and Rogue River Valley Irrigation Districts in Fish and Fourmile Lakes now totals 17,000 acre feet. Last year at this time they held only 12,300 acre feet and the February 1 average is 13,300 acre feet.

Hyatt Lake, Howard Prairie, and Emigrant Gap reservoirs now have 81,200 acre feet as compared to 77,400 acre feet a year ago. This water is available for use by Talent Irrigation District.

**STREAMFLOW** - Streamflow forecasts vary from 96 percent or 70,000 acre feet on the Clearwater to 115 percent or 225,000 acre feet on the Illinois for the April-September period.

The Rogue below South Fork is forecast to flow 750,000 acre feet or 100 percent of average and the Rogue at Raygold 99 percent or 995,000 acre feet for the April-September period.

Canal alternation is not expected to be necessary this season on the Rogue and the South Fork of Little Butte Creek is expected to drop to 100 cfs by about June 18.

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Althouse Creek	Average	Average
Applegate River, Big	Average	Average
Applegate River, Little	Average	Average
Ashland Creek	Average	Average
Butte Creek, Little	Average	Average
Butte Creek, Big	Average	Average
Cow Creek	Average	Average
Deer Creek	Average	Average
Elk Creek	Average	Average
Emigrant Creek (abv. Res.)	Average	Average
Evans Creek	Average	Average
Gold Hill Irrigation Dist.	Average	Average
Grants Pass Irrig. Dist.	Average	Average
Grave Creek	Average	Average
Illinois River, East Fork	Average	Average
Illinois River, West Fork	Average	Average
Jump-off-Joe Creek	Average	Average
Neil Creek	Average	Average
Red Blanket Creek	Average	Average
Rogue River	Average	Average
Sucker Creek	Average	Average
Table Rock Irrig. Dist.	Average	Average
Thompson Creek	Average	Average
Wagner Creek	Average	Average
Williams Creek	Average	Average

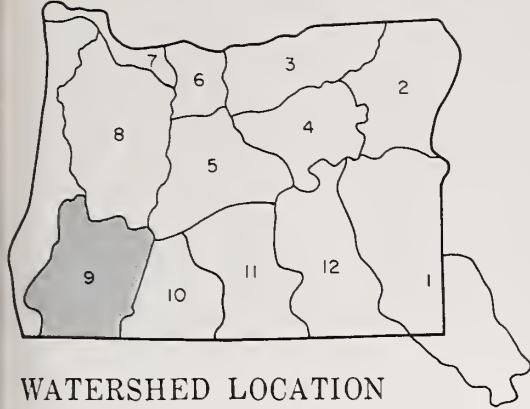
RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943-57 AVERAGE
Emigrant Gap	39.0	24.3	24.7	5.2
Fish Lake	7.8	4.6	4.7	5.0
Fourmile Lake	16.1	12.4	7.6	8.3
Howard Prairie	60.0	45.4	40.1	-- --
Hyatt Prairie	16.1	11.5	12.6	6.1

STREAMFLOW FORECASTS<sup>a</sup>(1,000 Ac. Ft.) as of February 1, 1964

NO.	FORECAST POINT NAME	FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE <sup>i</sup>
3620	Applegate near Copper	129	April-Sept.	131	98
3145	Clearwater above Trap Creek <sup>d</sup>	70	April-Sept.	73	96
5045	Fourmile Lake net Inflow <sup>d</sup>	7.8	Feb.-Sept.	8.0	98
5140	Hyatt Reservoir net Inflow <sup>d</sup>	6.5	April-Sept.	6.2	105
3770	Illinois River at Kerby	357	March-July	314	114
		225	April-Sept.	196	115
3425	Little Butte, N. Fk. at Fish Lake nr. Lake Cr. <sup>d</sup>	17.5	April-Sept.	16.9	104
3415	Little Butte, S. Fork near Lake Creek	48	April-July	42	114
	Note: Minimum flow will drop to 100 c.f.s. by June 18.				
3280	Rogue above Prospect	350	April-Sept.	351	100
		295	April-July	293	101
3320	Rogue, South Fork near Prospect <sup>d</sup>	84	April-Sept.	83	101
		72	April-July	71	102
3350	Rogue below South Fork	750	April-Sept.	749	100
		610	April-July	608	100
3590	Rogue at Raygold near Central Point	995	April-Sept.	1004	99
		840	April-July	842	100
3615	Rogue at Grants Pass	975	April-Sept.	974	100
3135	Umpqua, North blw. Lemolo Res. nr. Toketee Falls <sup>d</sup>	180	April-Sept.	186	97

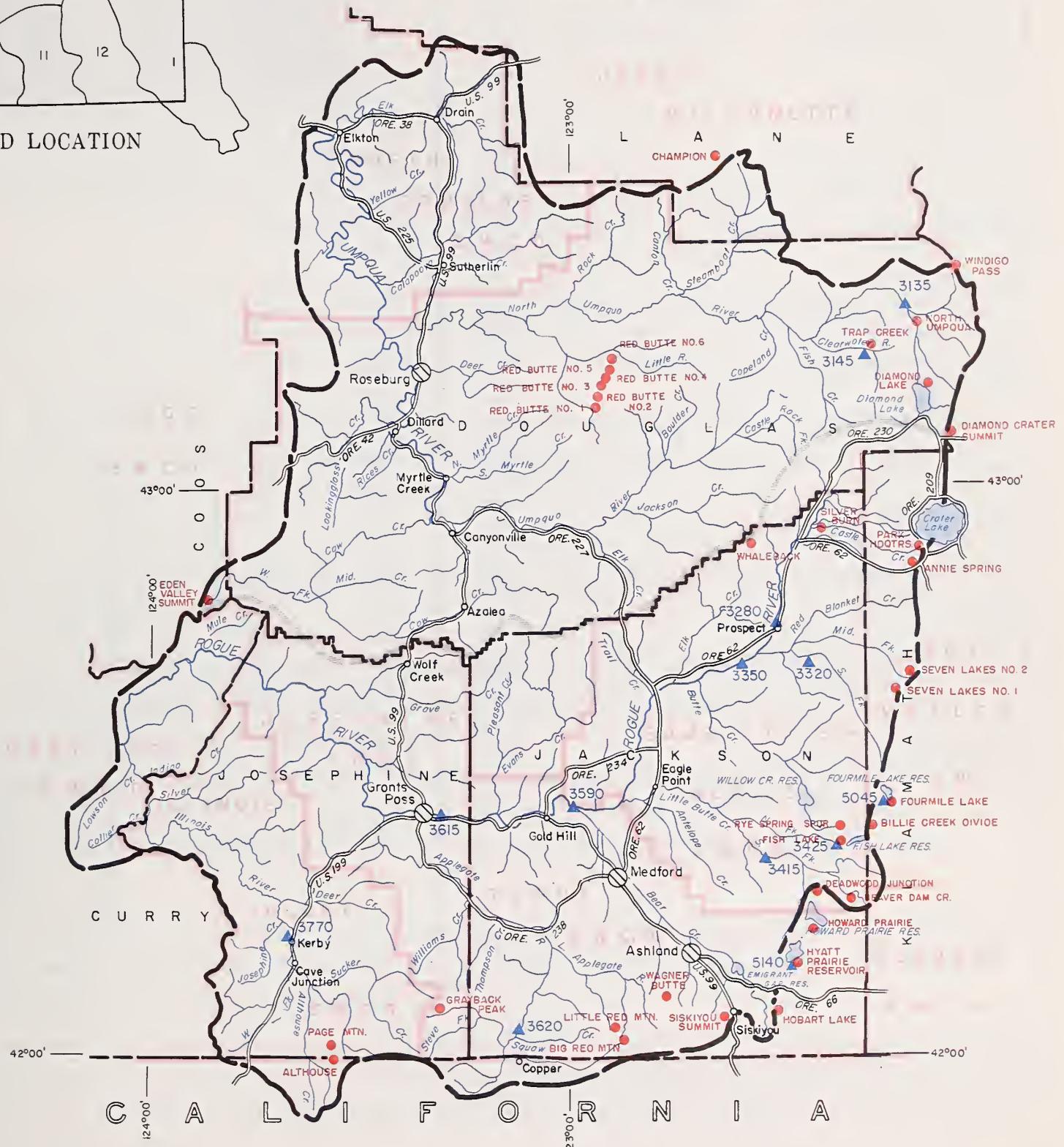
(a) Assuming normal meteorological conditions. (b) No report. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage, water content estimated. (f) Nearest current data. (g) Partly estimated. (h) 1943-57 adjusted average. (i) 1943-57, 15 year average. (j) Telephonic report - data not confirmed. (k) Data from PP&L Co. or USBR records.

# ROGUE, UMPQUA WATERSHEDS



## WATERSHED LOCATION

10 0 10 20 30  
SCALE IN MILES



## LEGEND

- Watershed Boundary
- Sub-watershed Boundary
- Soil Conservation District Bdry
- County Boundary
- ▲ Forecast Point
- Snow Course

# Rogue, Umpqua Watersheds

## SNOW

SNOW COURSE		DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	PAST RECORD	
NAME	ELEVATION				LAST YEAR	1943-57 AVERAGE
Althouse	4530	1/29	22	9.5	0.1	5.1 <sup>h</sup>
Annie Spring	6018	1/28	102	31.3	8.4	30.9
Beaver Dam Creek	5100	1/29	40	11.4	0.0	- -
Big Red Mountain	6500	1/28	60	16.4	5.7	20.5 <sup>h</sup>
Billie Creek Divide	5300	1/30	68	17.1	1.8	17.9 <sup>h</sup>
Champion	4500	1/30	75	23.5	2.4	20.1
Cold Springs Camp	6100	1/31	93	26.1	8.8	- -
Deadwood Junction	4600	1/29	34	9.9	0.0	- -
Diamond-Crater Summit	5800	1/23	100	24.0	8.2	- -
Diamond Lake	5315	1/23	69	14.7	4.1	18.3
Eden Valley Summit	2390	1/29	8	4.6	0.0	- -
Fish Lake	4865	1/31 <sup>j</sup>	49	14.0	0.0	10.3 <sup>h</sup>
Fourmile Lake	6000	1/31 <sup>j</sup>	58	17.2	17.0	20.3 <sup>h</sup>
Grayback Peak	6000	1/29	70	23.1	1.5	17.1 <sup>h</sup>
Hobart Lake	5010	b				
Howard Prairie	4500	1/29	29	7.9	0.0	- -
Hyatt Prairie Reservoir	4900	1/29	34	9.0	0.0	7.7 <sup>h</sup>
King Mountain #1	4800	b				
Little Red Mountain	6500	1/28	52	14.5	3.1	15.1 <sup>h</sup>
North Umpqua near Lake Creek	4215	1/27	50	13.5	3.8	12.0 <sup>h</sup>
Page Mountain	4045	1/29	14	6.2	0.1	- -
Park Headquarters	6450	1/28	129	44.2	15.0	39.0 <sup>h</sup>
Red Butte #1	4560	1/28	53	17.8	0.0	- -
Red Butte #2	4000	1/28	36	12.4	0.0	- -
Red Butte #3	3500	1/28	27	10.2	0.0	- -
Red Butte #4	3000	1/28	18	7.0	0.0	- -
Red Butte #5	2500	1/28	7	3.4	0.0	- -
Red Butte #6	2000	1/28	0	0.0	0.0	- -
Rye Spring Spur	5000	1/31 <sup>j</sup>	47	14.0	0.0	- -
Seven Lakes #1	6800	1/28	121	32.2	13.3	37.7 <sup>h</sup>
Seven Lakes #2	6200	1/28	99	27.8	5.7	28.4 <sup>h</sup>
Silver Burn	3720	1/28	43	12.5	0.6	10.9
Siskiyou Summit (Alternate)	4630	1/26	38	9.6	- -	- -
South Fork Canal	3500	1/28	20	5.7	0.0	3.8 <sup>h</sup>
Trap Creek	3800	1/27	44	12.8	1.4	11.5 <sup>h</sup>
Wagner Butte	6900	b				
Whaleback	5140	1/30	87	25.9	0.0	26.0 <sup>h</sup>
Windigo Pass	5800	1/31	108	33.0	8.9	30.4 <sup>h</sup>

# WATER SUPPLY OUTLOOK KLAMATH WATERSHEDS OREGON

*as of*

FEBRUARY 1, 1964

U. S. D. A. SOIL CONSERVATION SERVICE  
OREGON STATE UNIVERSITY ... OREGON STATE ENGINEER

**GENERAL OUTLOOK** - Heavy January storms brought great additions to the mountain snowpack and added assurance that the 1964 water supplies in Klamath Basin will be satisfactory. Stored water supplies are below average but will be adequate.

**SNOW COVER** - Water content of the snowpack increased to 106 percent of average on February 1. It was only 45 percent average on January 1 this year and last year on February 1 it was only 25 percent of average.

**SOIL MOISTURE** - Moisture in the soil mantle under the snowpack increased slightly during January and now stands at 74 percent of capacity which is favorable for snowmelt runoff.

**RESERVOIR STORAGE** - Upper Klamath Lake now contains about 280,000 acre feet compared with 352,000 acre feet one year ago. There is ample runoff in sight to more than fill this important reservoir.

Gerber Reservoir contains 36,900 acre feet compared with 28,200 last year. Clear Lake now holds 98,900 a.f. against 112,000 acre feet on February 1 last year. Both reservoirs, with good expected inflows yet to come, should have adequate water supplies.

**STREAMFLOW** - Forecasted inflow to Clear Lake and Gerber reservoirs for the February-June period are for 125,000 and 60,000 acre feet respectively. These flows will be 118 percent of the 15 year average (1943-57).

Upper Klamath Lake is forecast to receive 930,000 acre feet in the February-September period or 97 percent average. Flows of Sprague and Williamson rivers during this same period are forecast at 402,000 acre feet (103 percent) and 650,000 acre feet (99 percent) respectively.

Flow of most small streams heading in low-elevation watersheds will be near average following a normal snowmelt peak.

Inflow to Upper Klamath Lake\* during January was about 94 percent average and the total flow from October 1 to date has been 95 percent average.

\* Preliminary data from Pacific Power & Light Company, Medford and from U. S. Bureau of Reclamation, Klamath Falls, Oregon.

## WATER SUPPLY OUTLOOK

expressed as "Poor", "Fair"  
"Average" or "Excellent"

## RESERVOIR STORAGE (1,000 Ac. Ft.)

Feb. 1, 1964

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Ft. Klamath Valley	Average	Average
Lost River (Clear Lake)	Average	Average
Lost River (Gerber)	Average	Average
Lost River (Willow Res.)	Average	Average
Sprague River	Average	Average
Upper Klamath Lake	Average	Average
Williamson River	Average	Average

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943-57 AVERAGE
Clear Lake	440.2	98.9	112.0	208.8
Gerber	94.0	36.9	28.2	34.7
Upper Klamath Lake	584.0	280.1	352.4	348.5

STREAMFLOW FORECASTS<sup>a</sup>(1,000 Ac. Ft.) as of February 1, 1964

FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE <sup>i</sup>
NO.	NAME				
923	Clear Lake Reservoir Inflow <sup>k</sup>	125	Feb.-June	106	118
		60	April-Sept.	50	120
8215	Gerber Reservoir Inflow <sup>k</sup>	60	Feb.-June	51	118
		30	April-Sept.	25	120
5010	Sprague near Chiloquin	402	Feb.-Sept.	390	103
5070	Upper Klamath Lake net Inflow <sup>d k</sup>	293	April-Sept.	296	99
		930	Feb.-Sept.	960	97
		620	April-Sept.	632	98
5025	Williamson below Sprague River <sup>k</sup>	480	April-Sept.	486	99
		650	Feb.-Sept.	657	99

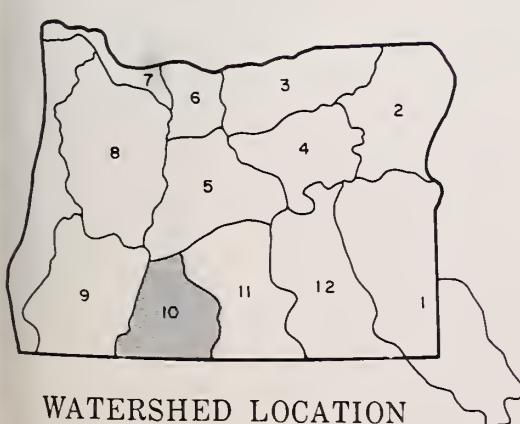
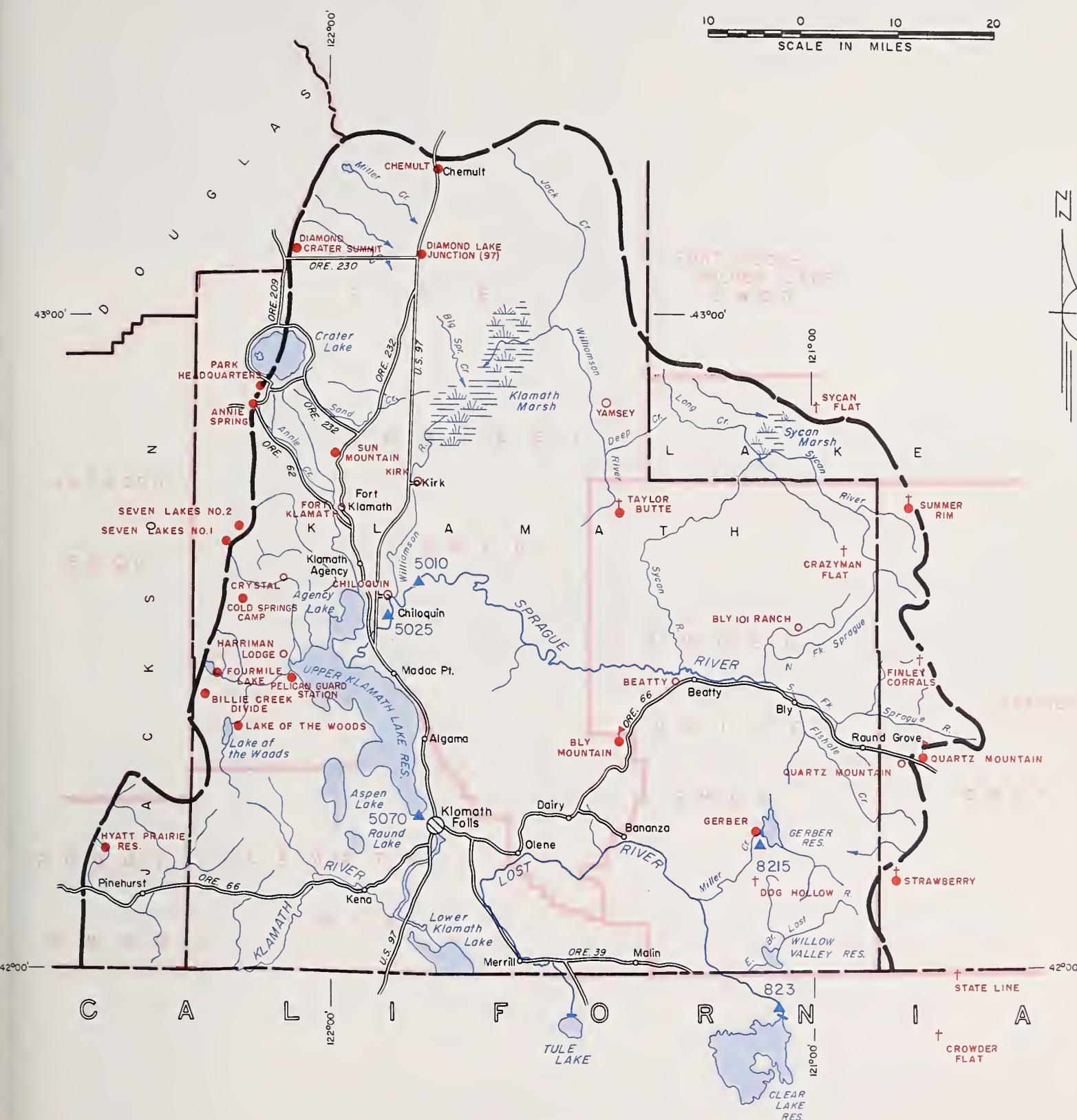
## SOIL MOISTURE

STATION	PROFILE (Inches)		SOIL MOISTURE (Inches)			
	DEPTH	CAPACITY	DATE	THIS YEAR	LAST YEAR	2 YEARS AGO
NAME	ELEVATION					
Bly Mountain	5090	42	14.0	1/29/64	10.3	11.8
						10.4

(a) Assuming normal meteorological conditions. (b) No report. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage, water content estimated. (f) Nearest current data. (g) Partly estimated. (h) 1943-57 adjusted average. (i) 1943-57, 15 year average. (j) Telephonic report - data not confirmed. (k) Data from PP&L Co. or USBR records.

# KLAMATH WATERSHEDS

10 0 10 20  
SCALE IN MILES



WATERSHED LOCATION

## LEGEND

- Watershed Boundary
- Sub-watershed Boundary
- Soil Conservation District Bdry
- County Boundary
- ▲ Forecast Point
- Snow Course
- † Aerial Snow Depth Gage
- COPCO Snow Station
- Soil Moisture Station

# Klamath Watersheds

## SNOW

SNOW COURSE		DATE OF SURVEY	CURRENT INFORMATION		PAST RECORD	
NAME	ELEVATION		SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)	LAST YEAR
Annie Spring	6018	1/28	102	31.3	8.4	30.9
Beatty (PP&L)	4300	1/31	8	2.0	0.5	0.5 <sup>h</sup>
Billie Creek Divide	5300	1/30	68	17.1	1.8	17.9
Bly Mountain	5090	1/29	31	8.6	0.2	--
Bly 101 Ranch (PP&L)	4800	1/31	13	4.1	1.6	1.9
Chemult	4760	1/27	35	8.5	1.3	10.0
Chiloquin (PP&L)	4187	1/31	12	4.1	0.9	2.3
Cold Springs Camp	6100	1/31	93	26.1	8.8	--
Crazyman Flat <sup>e</sup>	6100	1/26	36	8.6	0.0	--
Crowder Flat <sup>e</sup> (Calif.)	5200	1/27	26	6.2	0.5	3.3 <sup>h</sup>
Crystal (PP&L)	4200	1/31	26	7.5	3.0	7.8
Diamond-Crater Summit	5800	1/23	100	24.0	8.2	--
Diamond Lake Junction (97)	4600	1/23	25	6.6	0.0	--
Dog Hollow <sup>e</sup>	4900	1/27	12	2.9	0.0	--
Finley Corrals <sup>e</sup>	6000	1/26	60	14.4	0.0	--
Fort Klamath (PP&L)	4150	1/31	19	4.7	1.6	3.9 <sup>h</sup>
Gerber	4850	1/29	.21	6.2	T	2.6 <sup>h</sup>
Hyatt Prairie Reservoir	4900	1/29	34	9.0	0.0	7.7
Kirk (PP&L)	4533	1/31	28	7.4	2.3	6.4
Lake of the Woods	4960	1/27	38	10.3	--	9.6
Park Headquarters	6450	1/28	129	44.2	15.0	39.0 <sup>h</sup>
Pelican Guard Station	4150	1/30	20	5.8	0.3	--
Quartz Mountain	5320	1/29	27	6.5	0.1	5.8 <sup>h</sup>
Quartz Mountain (PP&L)	5504	1/29	30	7.2	0.1	5.8 <sup>h</sup>
Seven Lakes #1	6800	1/28	121	32.2	13.3	37.7 <sup>h</sup>
Seven Lakes #2	6200	1/28	99	27.8	5.7	28.4 <sup>h</sup>
State Line <sup>e</sup> (Calif.)	5750	1/27	48	11.5	0.0	--
Strawberry <sup>e</sup>	5600	2/3	28	7.6	0.0	7.6 <sup>h</sup>
Summer Rim <sup>e</sup>	7200	1/26	46	11.0	0.8	--
Sun Mountain	5350	1/22	74	17.9	3.8	20.2
Sycan Flat <sup>e</sup>	5500	1/26	30	7.2	0.0	--
Taylor Butte	5100	1/24	22	5.1	0.0	4.9 <sup>h</sup>
Tomahawk-Harriman (PP&L)	4200	1/31	26	7.1	1.3	4.5 <sup>h</sup>
Yamsey (PP&L)	4600	1/31	17	5.0	2.5	4.1

"The Conservation of Water begins with the Snow Survey"



# WATER SUPPLY OUTLOOK LAKE COUNTY, GOOSE LAKE WATERSHEDS OREGON

*as of*  
**FEBRUARY 1, 1964**

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**U. S. D. A. SOIL CONSERVATION SERVICE  
OREGON STATE UNIVERSITY ... OREGON STATE ENGINEER**

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## GENERAL OUTLOOK

Heavy mountain snow cover gives substantial assurance of an entirely adequate water supply outlook for Lake County in 1964 - the first adequate outlook since the good year of 1958.

## SNOW COVER

Exceptionally heavy storms in January raised the water content of the snowpack from a short 31 percent of the January 1 average to a high of 117 percent of the February 1 average. Last year at this date the snowpack was only 3 percent of average.

## SOIL MOISTURE

Moisture in the soil mantle under the snowpack has increased in one month from 67 percent to 72 percent of capacity promising a favorable runoff from snowmelt next spring.

## RESERVOIR STORAGE

Stored water in Drews Valley Reservoir is now 38,600 acre feet compared with 27,900 acre feet at this date last year. Cottonwood Reservoir is holding 1,000 acre feet already. The total available to the Lakeview Water Users is 39,600 a.f. or 10,000 more than was available last year - a very adequate supply.

## STREAMFLOW

Inflow to Drews Reservoir for the March-July period is forecast at 60,000 acre feet or 128 percent average.

Major streams of Warner Valley are forecast to flow 120 to 125 percent average in the March-June period. Here are the forecasts:

Twentymile Creek	35,000 or 125 percent average
Deep Creek	100,000 or 120 percent average
Honey Creek	23,000 or 120 percent average

*Report prepared by*

W.T. FROST AND BOB L. WHALEY

U.S. DEPARTMENT OF AGRICULTURE - SOIL CONSERVATION SERVICE  
209 S.W. FIFTH AVENUE - PORTLAND 4, OREGON

Flow of the Chewaucan River in the March-June period is forecast at 113,000 a.f.  
or 123 percent average.

Flow of most small streams heading in low-elevation watersheds will be near average following a normal snowmelt peak.

Good water supplies for all of Lake County seem assured if snow continues to accumulate at normal rates and if the spring melting season is favorable for runoff.

### WATER SUPPLY OUTLOOK expressed as "Poor", "Fair", "Average" or "Excellent"

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Chewaucan River	Average	Average
Crooked Creek	Average	Average
Deep Creek	Average	Average
Dry Creek	Average	Average
East Side Goose Lake	Average	Average
Guano Lake	Average	Average
Honey Creek	Average	Average
Lakeview Water Users Assn.	Average	Average
Rock Creek (Hart Mtn.)	Average	Average
Silver-Buck Creeks	Average	Average
Summer Lake	Average	Average
Thomas Creek	Average	Average
Twentymile Creek	Average	Average
Warner Lakes	Average	Average

### RESERVOIR STORAGE (1,000 Ac. Ft.) Feb. 1, 1964

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943-57 AVERAGE
Cottonwood	4.1	1.0	1.7	0.3
Drew	63.0	38.6	27.9	37.5

### STREAMFLOW FORECASTS<sup>a</sup> (1,000 Ac. Ft.) as of February 1, 1964

NO.	NAME	FORECAST POINT	FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE		THIS YEAR AS PERCENT OF AVERAGE <sup>i</sup>
					NAME	1943-57 AVERAGE	
3840	Chewaucan near Paisley		113	March-June	92	123	
3715	Deep above Adel		100	March-June	83	120	
3385	Drew Reservoir net Inflow		60	March-July	47	128	
3785	Honey near Plush		23	March-June	19.2	120	
3660	Twentymile near Adel		35	March-June	28	125	

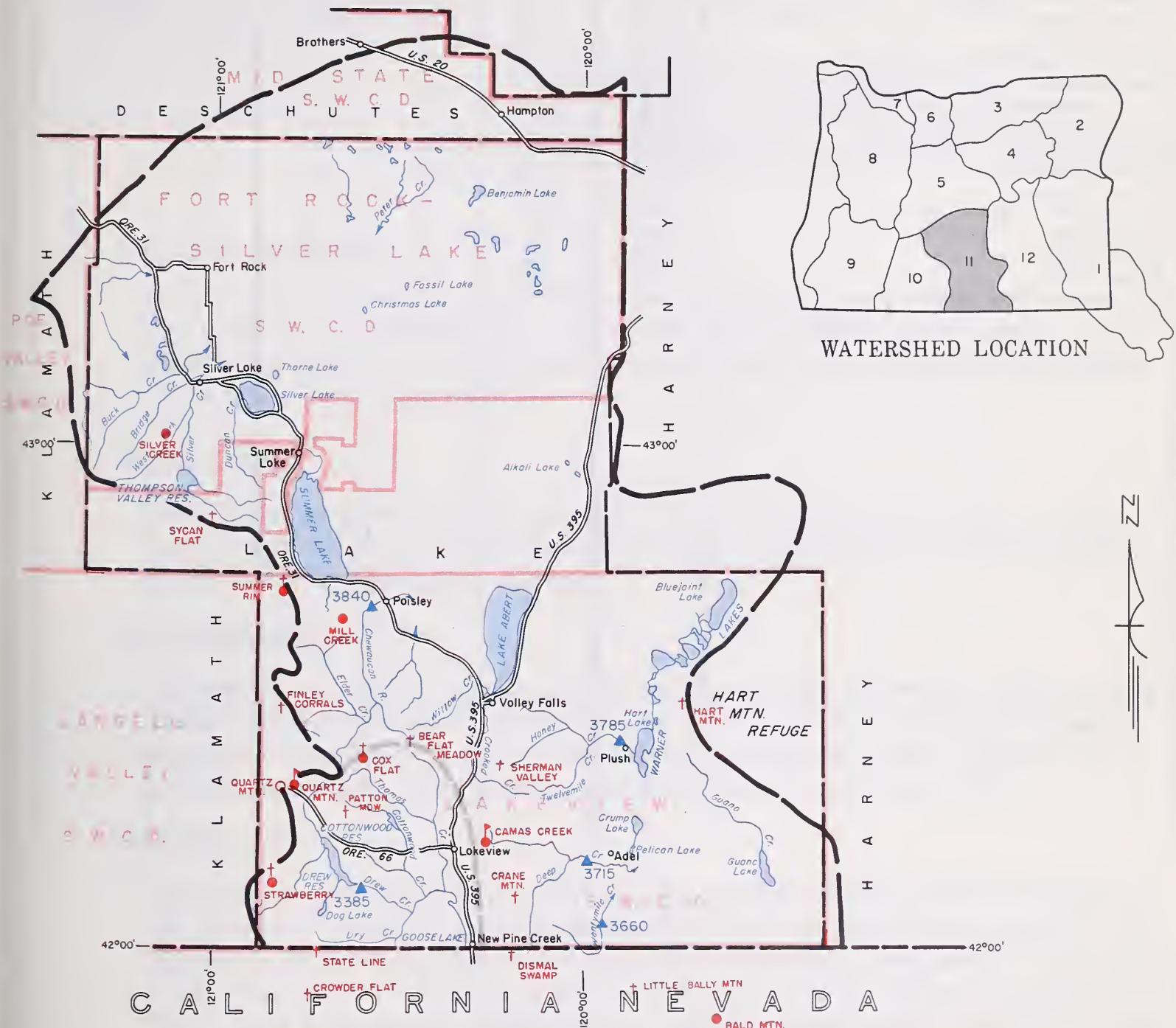
### SOIL MOISTURE

STATION	PROFILE (Inches)			SOIL MOISTURE (Inches)			
	DEPTH	CAPACITY	DATE	THIS YEAR	LAST YEAR	2 YEARS AGO	
Camas Creek	5720	42	14.5	1/28/64	12.4	12.6	10.0
Quartz Mountain	5320	48	15.3	1/29/64	9.0	10.8	8.0

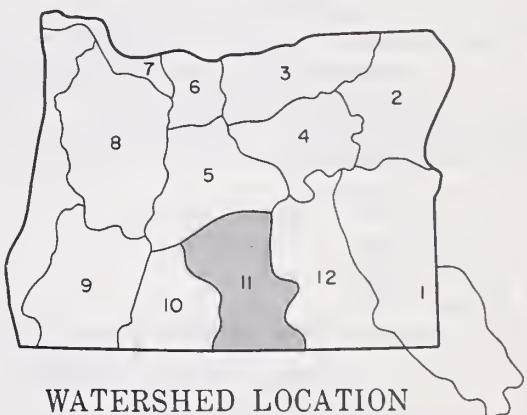
(a) Assuming normal meteorological conditions. (b) No report. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage, water content estimated. (f) Nearest current data. (g) Partly estimated. (h) 1943-57 adjusted average. (i) 1943-57, 15 year average. (j) Telephonic report - data not confirmed. (k) Data from PP&L Co. or USBR records.

# LAKE COUNTY, GOOSE LAKE WATERSHEDS

10 0 10 20 30  
SCALE IN MILES



WATERSHED LOCATION



## LEGEND

- Watershed Boundary
- Sub-watershed Boundary
- Sail Conservation District Bdry
- County Boundary
- ▲ Forecast Point
- Snow Course
- † Aerial Snow Depth Gage
- COPCO Snow Station
- Sail Moisture Station

# Lake County, Goose Lake Watersheds

## SNOW

SNOW COURSE		CURRENT INFORMATION			PAST RECORD		
NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)	LAST YEAR	1943-57 AVERAGE
Bald Mountain (Nev.)	6720	c					
Bear Flat Meadow <sup>e</sup>	5900	1/26	30	7.2	0.0	--	
Camas Creek	5720	1/28	41	9.9	0.0	8.5	
Cox Flat <sup>e</sup>	5750	1/26	34	8.2	0.0	--	
Crane Mountain <sup>e</sup>	6020	1/26	18	4.3	0.0	--	
Crowder Flat <sup>e</sup> (Calif.)	5200	1/27	26	6.2	0.0	3.3 <sup>h</sup>	
Dismal Swamp <sup>e</sup> (Calif.)	7000	1/26	45	10.8	1.5	--	
Finley Corrals <sup>e</sup>	6000	1/26	60	14.4	0.0	--	
Hart Mountain <sup>e</sup>	6350	1/26	4	1.0	0.0	--	
Little Bally Mountain <sup>e</sup> (Nev.)	6600	1/26	10	2.4	0.0	--	
Mill Creek	6200	c					
Patton Meadows <sup>e</sup>	6800	1/26	48	11.5	0.4	--	
Quartz Mountain (PP&L)	5504	1/29	30	7.2	0.1	5.8 <sup>h</sup>	
Quartz Mountain	5320	1/29	27	6.5	0.1	5.8	
Sherman Valley <sup>e</sup>	6600	1/26	36	8.6	0.1	--	
Silver Creek	4900	1/29	11	2.9	0.9	3.5 <sup>h</sup>	
State Line <sup>e</sup> (Calif.)	5750	1/27	48	11.5	0.0	--	
Strawberry <sup>e</sup>	5600	2/3	28	7.6	0.0	7.6 <sup>h</sup>	
Summer Rim <sup>e</sup>	7200	1/26	46	11.0	0.8	--	
Sycan Flat	5500	1/26	30	7.2	0.0	--	



# WATER SUPPLY OUTLOOK HARNEY BASIN WATERSHEDS OREGON

*as of*  
FEBRUARY 1, 1964

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U. S. D. A. SOIL CONSERVATION SERVICE  
OREGON STATE UNIVERSITY ... OREGON STATE ENGINEER

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## GENERAL OUTLOOK

January storms brought much-needed snow to Harney County watersheds improving the water supply outlook to "near average" for the 1964 irrigation season. Watershed soils, although drier than last year, are fairly well wetted and should absorb little water from spring runoff.

## SNOW COVER

Snow cover on Harney Basin watersheds is now 97 percent of average. It was only 41 percent one month earlier and last year at this time was only 26 percent of the 1943-57 February 1 average.

## SOIL MOISTURE

Watershed soil moisture improved only slightly at lower elevations during January. Precipitation fell as snow over most of the basin with little melting and measurements on soil moisture stations in the northern end of the county indicate 80 percent of capacity and should not absorb much water from spring runoff.

## STREAMFLOW

Forecasts of streamflow for the 1964 irrigation season in Harney Basin range from 101 percent or 125,000 acre feet on the Silvies for the March-June period to 115 percent or 30,000 acre feet on Silver Creek for the April-July period. The Blitzen is expected to flow 70,000 acre feet or 111 percent for the March-June period and Trout Creek is forecast at 103 percent or 9,800 acre feet for the March-July period.

Smaller streams of the county are expected to have near average flows following a normal snowmelt peak.

# WATER SUPPLY OUTLOOK

expressed as "Poor", "Fair"  
"Average" or "Excellent"

STREAM or AREA	FLOW PERIOD	
	SPRING SEASON	LATE SEASON
Catlow Valley	Average	Average
Cow Creek	Average	Average
Donner und Blitzen River	Average	Average
Mill-Coffeepot Creeks	Average	Average
Rattlesnake Creek	Average	Average
Silver Creek	Average	Average
Silvies River	Average	Average
Soldier-Prather Creek	Average	Average
Trout Creek	Average	Average
Whitehorse Creek	Average	Average

# RESERVOIR STORAGE (1,000 Ac. Ft.) Feb. 1, 1964

RESERVOIR	USABLE CAPACITY	MEASURED (First of Month)		
		THIS YEAR	LAST YEAR	1943-57 AVERAGE

## STREAMFLOW FORECASTS<sup>a</sup>(1,000 Ac. Ft.) as of February 1, 1964

FORECAST POINT		FORECAST THIS YEAR	FORECAST PERIOD	1943-57 AVERAGE	THIS YEAR AS PERCENT OF AVERAGE <sup>i</sup>
NO.	NAME				
3960	Donner und Blitzen near Frenchglen	70	March-June	63	111
		75	April-Sept.	67	112
4030	Silver near Riley	30	April-July	26	115
		125	March-June	124	101
3935	Silvies near Burns	107	April-Sept.	107	100
		9.8	March-July	9.5	103
4065	Trout near Denio	9.5	April-Sept.	9.2	103

## SOIL MOISTURE

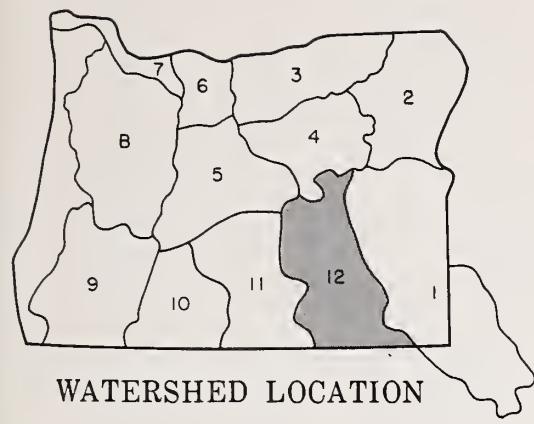
STATION	PROFILE (Inches)		SOIL MOISTURE (Inches)			
	DEPTH	CAPACITY	DATE	THIS YEAR	LAST YEAR	2 YEARS AGO
NAME	ELEVATION					
Blue Mountain Springs	5900	42	16.9	1/30/64	7.2	11.7
Fish Creek	7600	48	15.0	9/30/63	7.4 <sup>f</sup>	9.2 <sup>f</sup>
Folly Farm	4450	36	12.5	12/19/63	8.3 <sup>f</sup>	9.0 <sup>f</sup>
Silvies	6900	48	16.4	9/30/63	9.5 <sup>f</sup>	11.7 <sup>f</sup>
Snow Mountain	6300	48	16.7	1/29/64	12.2	13.4
Starr Ridge	5150	36	10.6	1/29/64	8.1	10.4
Stinking Water	4800	48	21.9	12/19/63	20.8 <sup>f</sup>	20.9 <sup>f</sup>
Willow-Bald	5000	24	6.6	1/30/64	5.6	6.2

## SNOW

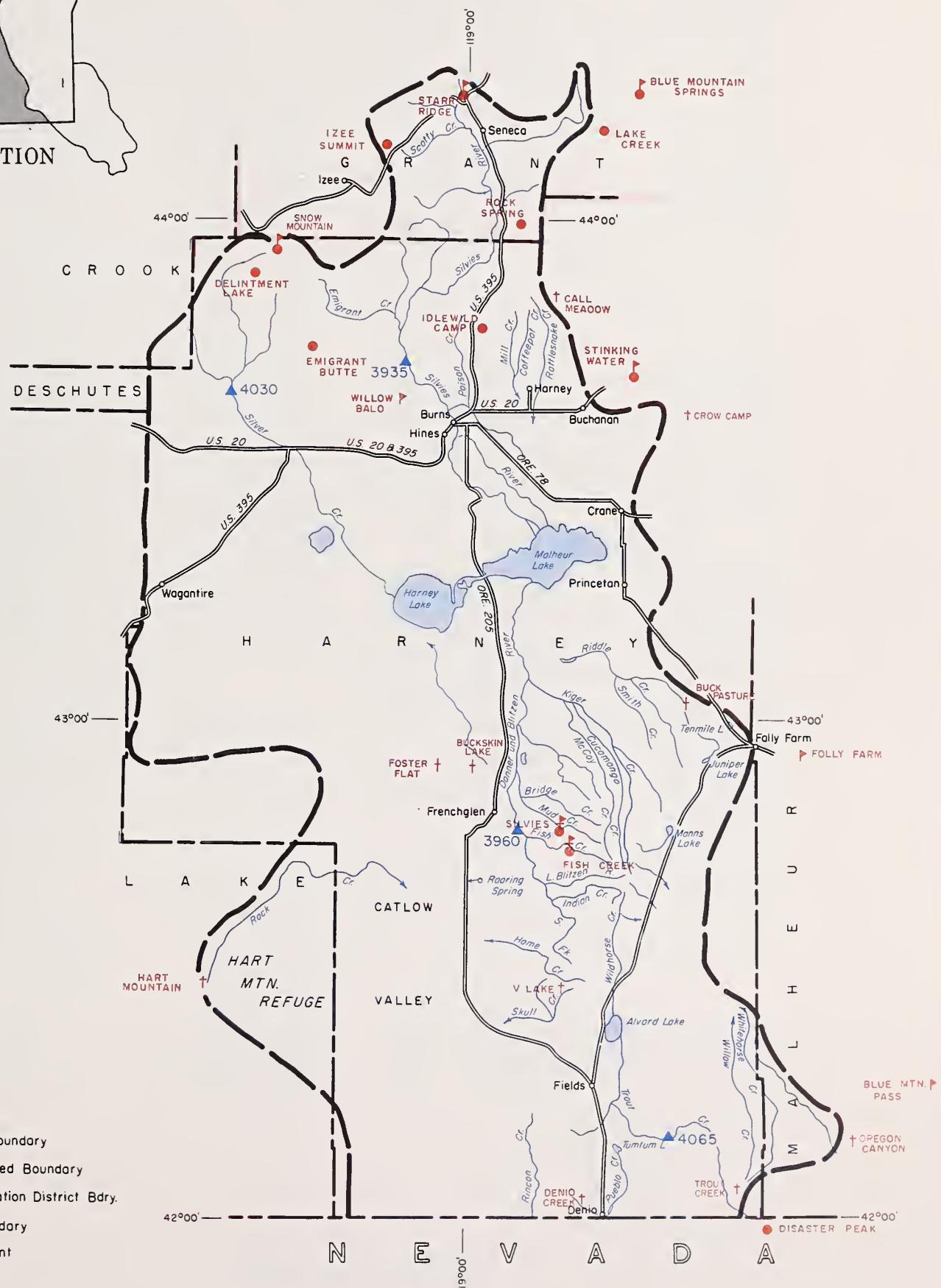
SNOW COURSE	CURRENT INFORMATION			PAST RECORD	
	DATE OF SURVEY	SNOW DEPTH (Inches)	WATER CONTENT (Inches)	WATER CONTENT (Inches)	LAST YEAR
NAME	ELEVATION				1943-57 AVERAGE
Blue Mountain Springs	5900	1/30	46	10.8	3.7
Buck Pasture <sup>e</sup>	5700	2/2	20	4.8	0.0
Buckskin Lake <sup>e</sup>	5200	1/31	9	2.2	0.0
Call Meadows <sup>e</sup>	5340	2/2	14	3.1	T
Crow Camp <sup>e</sup>	5500	2/2	12	3.0	0.0
Delintment Lake	5600	1/29	25	5.9	0.6
Denio Creek <sup>e</sup>	6000	1/31	3	0.7	0.0
Disaster Peak (Nev.)	6500	c			--
Emigrant Butte	5000	1/29	19	4.8	0.0
Fish Creek <sup>e</sup>	7900	2/2	60	14.4	5.2
Foster Flate <sup>e</sup>	5020	1/31	5	1.2	0.0
Hart Mountain <sup>e</sup>	6350	1/26	4	1.0	0.0
Idlewild Camp	5200	1/28	20	4.5	0.2
Izee Summit	5293	1/29	26	6.4	1.8
Lake Creek	5120	b			6.8 <sup>h</sup>
Oregon Canyon <sup>e</sup>	6950	1/31	20	4.8	T
Rock Spring	5100	1/28	21	4.6	0.9
Silvies <sup>e</sup>	6900	2/2	27	6.5	0.4
Snow Mountain	6300	1/29	36	9.1	2.8
Starr Ridge	5150	1/29	20	5.2	1.3
Stinking Water	4800	1/29	15	3.7	1.5
Trout Creek <sup>e</sup>	7800	1/31	12	2.9	2.0
"V" Lake <sup>e</sup>	6600	1/31	8	1.9	0.0

(a) Assuming normal meteorological conditions. (b) No report. (c) Not scheduled. (d) Corrected to natural flow. (e) Aerial snow depth gage, water content estimated. (f) Nearest current data. (g) Partly estimated. (h) 1943-57 adjusted average. (i) 1943-57, 15 year average. (j) Telephonic report - data not confirmed. (k) Data from PP&L Co. or USBR records.

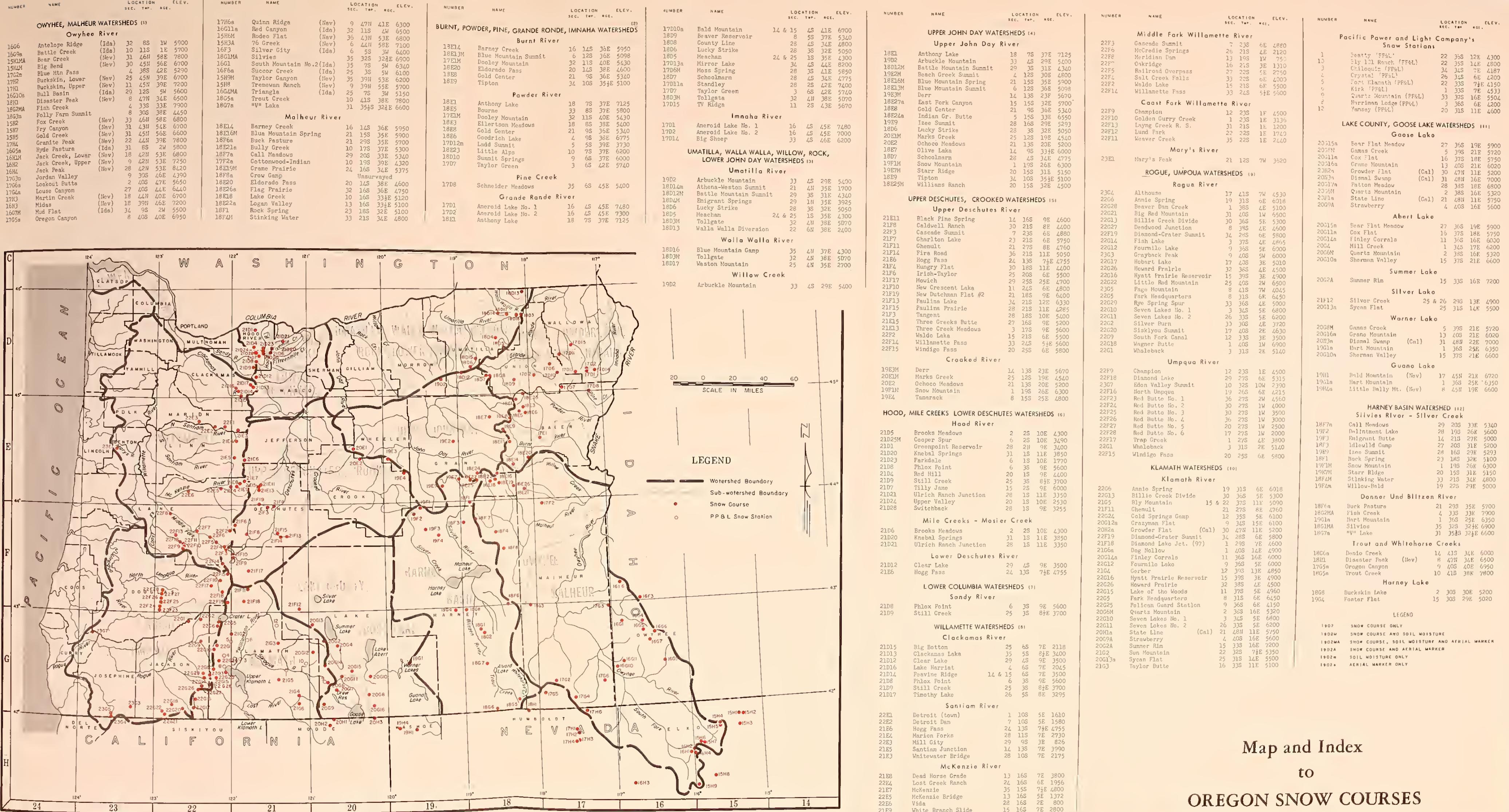
# HARNEY BASIN WATERSHEDS



10 0 10 20 30  
SCALE IN MILES



*"The Conservation of Water begins with the Snow Survey"*





The Following Organizations Cooperate  
in the Oregon Snow Survey Work

STATE

Idaho Cooperative Snow Surveys  
Nevada Cooperative Snow Surveys  
Oregon State University  
Oregon State Engineer and Corps of State Watermasters  
Oregon State Highway Engineers  
Soil Conservation Districts of Oregon

COUNTY

Douglas County Water Resources Survey

FEDERAL

Department of Agriculture  
Cooperative Extension Service  
Forest Service  
Soil Conservation Service  
Department of Commerce  
Weather Bureau  
Department of the Interior  
Bonneville Power Administration  
Bureau of Land Management  
Bureau of Reclamation  
Fish and Wildlife Service  
Geological Survey  
National Park Service  
Department of National Defense  
Corps of Army Engineers

PUBLIC UTILITIES

Pacific Power and Light Company  
Portland General Electric Company  
California-Pacific Utilities Company

MUNICIPALITIES

City of Baker  
City of La Grande  
City of The Dalles  
City of Walla Walla

IRRIGATION DISTRICTS

Arnold Irrigation District  
Associated Ditch Companies  
Burnt River Irrigation District  
Central Oregon Irrigation District  
East Fork Irrigation District  
Grants Pass Irrigation District  
Jordan Valley Irrigation District  
Lakeview Water Users, Incorporated  
Medford Irrigation District  
North Board of Control - Owyhee Project  
North Unit Irrigation District  
Ochoco Irrigation District  
Rogue River Valley Irrigation District  
South Board of Control - Owyhee Project  
Squaw Creek Irrigation District  
Talent Irrigation District  
Tumalo Project  
Vale-Oregon Irrigation District  
Warmsprings Irrigation District

PRIVATE ORGANIZATIONS

Amalgamated Sugar Company  
The Crag Rats, Hood River, Oregon

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necessary for forecasting  
water supply for irrigation,  
domestic and municipal water  
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generation, navigation,  
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